



Programmer's Manual



Introduction

This publication provides information about the commands supported by your printer. The commands are organized by function groups. Each command has both a brief and a detailed description.

Each command has the following structure:

Name and function description. Information about protocol (IBM® Proprinter XL24-XL24AGM, IBM Personal 2391+, EPSON FX Series, ANSI 3.64, DBCS).

The hexadecimal and decimal codes for the command: n represents variable parameters of the command. The functions of these parameters are explained in its corresponding command description.

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Index of Command Summary in Alphabetical Order

This section contains a summary of commands used on the Printronix S809 model printer. It is divided into 2 separate sections. “Common commands for the Printronix S809 model printers” lists all the commands common to both the Single Byte Character Set (SBCS) and Double Byte Character Set (DBCS) features. “Commands for the Printronix S809 model printer with the DBCS feature present” lists commands that can only be used when the DBCS feature is present.

Common commands for the Printronix S809 model printers

Command	Description	Page
BEL	Buzzer (IBM/EPSON).	50
BEL	Bell (ANSI).	81
BS	Print and space back one position (IBM/EPSON).	50
BS	Back space (ANSI).	74
CAN	Cancels line. (EPSON)	48
CAN	Cancels data. (IBM)	48
CR	Prints all received data and the column counter is set to the left margin IBM/EPSON)	15
CR	Carriage return (ANSI).	74
DC1	Selects printer. (IBM)	49
DC1	Selects printer. (EPSON)	49
DC1	Selects printer (Data Control 1) (ANSI)	80
DC2	Sets 10 cpi printing. (IBM)	27
DC2	Cancels compressed printing. (EPSON)	27
DC3	Deselects printer. (EPSON)	49
DC3	Deselects printer (Data Control 3) (ANSI)	80
DC4	Cancels double width printing (IBM/EPSON)	27
DC4 DC4 ESC !	Bar Code Selection	58
DC4 DC4 ESC (GS	Prints bar code symbols.	64
DC4 DC4 ESC @	Re-initializes the printer.	64
DC4 DC4 ESC 1	Sets vertical spacing n/180 inch.	55
DC4 DC4 ESC 3 1	Sets vertical spacing 12 lines/30 mm.	55
DC4 DC4 ESC 3 3	Sets vertical spacing to 3 lines/30 mm.	55
DC4 DC4 ESC 3 4	Sets vertical spacing 4 lines/30 mm.	55
DC4 DC4 ESC 3 6	Sets vertical spacing 6 lines/30 mm.	56
DC4 DC4 ESC 3 8	Sets vertical spacing 8 lines/30 mm.	56
DC4 DC4 ESC A	Sets the horizontal spacing to 15, 17.1, 20, 24 CPI.	56
DC4 DC4 ESC D	Sends the operator panel messages to the serial I/F.	66
DC4 DC4 ESC g	Selects LQ fonts.	56
DC4 DC4 ESC J	Sets amplification factor.	64
DC4 DC4 ESC N	Selects/loads or parks the fanfold from the Front 2 path.	65
DC4 DC4 ESC p	Sets quality printing.	57
DC4 DC4 ESC R	String rotation.	65
DC4 DC4 ESC r	Digit rotation.	65
DC4 DC4 ESC S	Selects character set ISO Character Sets or Code Pages.	57
DC4 DC4 ESC T	Selects/loads or parks the fanfold from the Front1 path.	65
DC4 DC4 ESC u	Selects the user macros.	66

Command	Description	Page
DC4 DC4 ESC Y	Selects emulation.	66
DC4 DC4 ESC Z	Makes AGA in column.	66
DEL	Deletes the last character. (EPSON)	49
DEL	Delete (ANSI).	81
ENQ	Enquiry (ANSI).	80
ESC	Escape (ANSI).	81
ESC -	Sets or cancels underlined printing (IBM/EPSON).	27
ESC [p1 a	Horizontal position relative (HPR) (ANSI).	75
ESC [p1; pn h	Sets mode (SM) (ANSI).	82
ESC [p1 d	Vertical position absolute (VPA) (ANSI).	77
ESC [p1 q	Select graphics mode/density (GRM) (ANSI).	84
ESC p1; pn l	Resets mode (RM) (ANSI)	82
ESC [p1; pn v	Sets vertical tab stops at specified positions (Multiple Vertical Tab Set -VTS) (ANSI)	79
ESC !	Sets printing style. (EPSON)	28
ESC #	Cancels MSB control. (EPSON)	49
ESC \$	Sets the absolute printing position. (EPSON)	16
ESC %	Selects user-defined character set. (EPSON)	42
ESC &	Defines the user-defined download characters. (EPSON)	42
ESC (-	Sets score line. (EPSON)	28
ESC *	Sets dot graphics printing. (IBM , EPSON)	45
ESC /	Selects the Vertical Format Unit (VFU) channel. (EPSON)	17
ESC :	Sets 12 CPI. (IBM)	29
ESC :	Copies characters from ROM to RAM. (EPSON)	44
ESC ?	Reassigns dot graphics mode. (EPSON)	46
ESC @	Initializes the printer. (EPSON)	51
ESC [-	Selects the score line. (IBM 2391 + only)	29
ESC [I	Sets font and pitch of a character. (IBM 2391 + only)	32
ESC [p1 '	Horizontal position absolute (HPA) (ANSI).	75
ESC [p1 k	Vertical position backward (VPB) (ANSI).	78
ESC [p1 x	Selects national character set (Select National Characters -SNC) (ANSI).	70
ESC [p1; p2 f	Horizontal and vertical position absolute (HVP) (ANSI).	78
ESC [p1; p2 SP~	Selects emulation (EMU) (ANSI).	83
ESC [p1; pn {	Unidirectional printing (UDP) (ANSI).	74
ESC [p1; pn }	Sets bar code parameters (BC) (ANSI).	85
ESC [p1; pn u	Sets horizontal tab stops at specified positions multiple horizontal tab set (HTS) (ANSI)	76
ESC [@	Selects the printing type style. (IBM 2391 + only)	30
ESC [@	Sets double high printing and double line feed. (IBM)	30
ESC [\	Sets vertical units. (IBM)	17
ESC [d	Set the print quality. (IBM 2391 + only)	31
ESC [g	Selects 8 or 24 needle dot graphics mode. (IBM)	48
ESC [K	Sets initial conditions. (IBM 2391 + only)	51
ESC [p1 e	Vertical position relative (VPR) (ANSI).	77
ESC [p1 j	Horizontal position backward (HPB) (ANSI).	75
ESC [p1 t	Special print mode (Oversize/Expanded/Bar code Mode -SPM) (ANSI).	73
ESC [p1; p2 <SP> G	Sets the line/character spacing (ANSI).	80
ESC [p1; p2 s	Left/right margin set (SLR) (ANSI).	75
ESC [p1; p2 SP B	Graphic size modification (GSM) (ANSI).	73
ESC [p1; p2; p3 r	Form definition (FD) (ANSI).	79

Command	Description	Page
ESC [p1; pn g	Tab clear (TBC) (ANSI).	78
ESC [p1; pn m	Select graphics rendition (SGR) (ANSI).	72
ESC [T	Selects a Code page (IBM).	40
ESC [u n	Bar Codes selection. (IBM -Epson)	53
ESC [v nm	Sets Barcode parameters. (IBM -Epson)	53
ESC \	Sets the relative dot position. (EPSON)	17
ESC \	Prints characters from all characters table. (IBM)	40
ESC \ or ST	String terminator (ANSI).	81
ESC]	Sets a reverse line feed. (IBM)	15
ESC ^	Prints a single character from the all characters table. (IBM)	41
ESC _	Sets or cancels overscore printing. (IBM)	33
ESC +	Sets n/360-inch line spacing. (IBM)	18
ESC <	Prints characters for one line from left to right. (EPSON)	29
ESC =	Defines downloaded characters. (IBM)	44
ESC =	Sets MSB to 0. (EPSON)	50
ESC >	Sets MSB to 1. (EPSON)	50
ESC 0	Sets vertical spacing to 1/8 inch (IBM/EPSON).	18
ESC 1	Sets vertical spacing to 7/72 inch. (IBM)	18
ESC 2	Sets the vertical spacing to 1/6 inch. (EPSON)	18
ESC 2	Enables the vertical spacing set by ESC A. (IBM)	18
ESC 3	Sets vertical spacing to n/180 inch. (IBM , EPSON)	19
ESC 3	Sets vertical spacing to n/216 inch. (IBM XL24, 2391 +)	19
ESC 4	Sets the current position as top of form (first printable line). (IBM)	19
ESC 4	Sets italics printing mode. (EPSON)	33
ESC 5	Sets an automatic line feed after a carriage return. (IBM)	15
ESC 5	Cancels italics printing. (EPSON)	33
ESC 6	Selects the Character Set 2 (IBM).	41
ESC 7	Selects the Character Set 1 (IBM).	41
ESC 7	Cancel Printable Code Area Expansion (EPSON)	34
ESC A	Sets variable vertical spacing to n/60 inch. (IBM , EPSON)	19
ESC A	Sets variable vertical spacing to n/72 inch. (IBM XL24, 2391 +)	19
ESC a	Sets Letter Quality justification printing. (EPSON)	33
ESC B	Sets vertical tab stops (IBM/EPSON).	20
ESC b	Sets vertical tab stops in one of the 8 Vertical Format Unit channels Available (EPSON)	20
ESC B	NUL Resets vertical tab stops (IBM/EPSON).	20
ESC b NUL	Resets vertical tab stops in one of the 8 Vertical Format Unit channels Available (EPSON)	21
ESC c	Resets to initial state (RIS) (ANSI).	82
ESC C 0 n	Sets form length to n inches (IBM/EPSON).	21
ESC C n	Sets form length to n lines (IBM/EPSON).	21
ESC D	Sets horizontal tab stops (IBM/EPSON).	21
ESC d	Spaces forwards relative dot position. (IBM)	22
ESC D or IND	Index (ANSI).	76
ESC e	Spaces backward relative dot position. (IBM)	22
ESC E	Sets emphasized printing (IBM/EPSON).	34
ESC E or NEL	Next line (ANSI).	76
ESC F	Cancels emphasized printing (IBM/EPSON).	35
ESC G	Sets double strike printing (IBM/EPSON).	35
ESC g	Sets 15 CPI. (EPSON)	34

Command	Description	Page
ESC H	Cancels double strike printing (IBM/EPSON).	34
ESC H or HTS	Horizontal tab setting (ANSI).	76
ESC I	Selects printing type for resident and DLL characters. (IBM)	35
ESC J	Advances paper n/216 inch (IBMXL24 and 2391)	16
ESC j	Feed paper n/216 in reverse direction (EPSON)	16
ESC J or VTS	Vertical tab setting (ANSI).	79
ESC k	Selects the LQ fonts. (EPSON)	41
ESC K	Normal density dot graphics printing (60 dpi) (IBM/EPSON).	46
ESC K	Prints test character (PTC) (ANSI).	82
ESC K or PLD	Partial line down (ANSI).	77
ESC I	Sets left margin. (EPSON)	22
ESC L	Double density dot graphics printing (120 dpi) (IBM/EPSON).	46
ESC L or PLU	Partial line up (ANSI).	78
ESC M	Selects 10.5 point, 12 CPI. (EPSON)	35
ESC M or RI	Reverse index (ANSI).	77
ESC N	Sets the skip over perforation to n lines (IBM/EPSON).	23
ESC O	Disables the skip over perforation (IBM/EPSON).	24
ESC P	Selects 10.5 point, 10 cpi (EPSON)	35
ESC P	Sets or cancels proportional printing. (IBM)	36
ESC p	Sets or cancels proportional printing. (EPSON)	36
ESC P data	Enter dot graphics mode (Device Control String) (ANSI).	84
ESC Q	Sets the right margin. (EPSON)	24
ESC Q	Deselects Printer. (IBM)	50
ESC Q or PU1	Executes Self test (ANSI).	81
ESC R	Sets horizontal and vertical tab stops to default values. (IBM)	24
ESC R	Selects Nation character set. (EPSON)	41
ESC S	Sets subscript or superscript printing (IBM/EPSON).	36
ESC s	Sets and resets Quiet printing. (EPSON)	37
ESC SP	Sets inter character space. (EPSON)	25
ESC T	Cancels subscript or superscript printing (IBM/EPSON).	37
ESC t	Selects characters table. (EPSON)	42
ESC U	Sets printing direction (IBM/Epson).	53
ESC W	Sets or cancels double width printing (IBM/EPSON).	38
ESC w	Sets or cancels double height printing. (EPSON)	38
ESC X	Sets left and right margins. (IBM)	25
ESC x	Selects Letter Quality or Draft. (EPSON)	38
ESC Y	Double density dot graphics printing at double-speed graphics (120 virtual dpi) (IBM/EPSON)	47
ESC Z	Quadruple density dot graphics printing (240 virtual dpi) (IBM/EPSON)	47
FF	Advances paper to the top of the next page (IBM/EPSON).	28
FF	Form feed (ANSI).	79
HT	Logically moves the print carriage to the next horizontal tab stop (IBM/EPSON).	26
HT	Horizontal tab (ANSI).	75
LF	Line Feed (IBM/EPSON).	16
LF	Line feed (ANSI).	76
NUL	Ignored (ANSI).	80
SI	Sets compressed printing. (EPSON)	39
SI	Shift in (ANSI).	72
SI or ESC SI	Sets compressed printing (IBM/EPSON).	36

Command	Description	Page
SO	Sets double width printing (one line) (IBM/EPSON).	39
SO	Shift out (ANSI).	73
SO or ESC SO	Sets double width printing (one line) (IBM/EPSON).	37
SP	Space (ANSI).	74
VT	Advances paper to the next vertical tab stop of the selected VFU channel (IBM/EPSON).	26
VT	Vertical tab (ANSI)	78

Commands for the Printronix S809 model printer with the DBCS feature present.

Command Description Page

ESC | n	Sets – Resets double width and double height print modes.	92
ESC (X n1 n2 a1 a2 a3	Defines a special printing effect.	97
FS &	Enter the DBCS print mode.	91
FS .	Exit the DBCS print mode.	91
FS ! n	Sets multiple print attribute at once.	96
FS -n	Sets -Resets underline mode.	93
FS 2 a ¹ a ² n ^{1..n⁷²}	Sets user-defined character (DownLoading).	96
FS b n	Sets the DBCS standard line.	97
FS c nl nh	Sets the HMI (Horizontal Motion Index)	97
FS D d1 d2	Composes two half-width, rotated characters into a normal size rotated character space.	93
FS DC2	Cancels half-sized and 1/4-sized print and restores normal size print.	93
FS DC4	Resets double width mode.	92
FS J	Sets 90 degrees counterclockwise character rotation.	92
FS K	Resets character rotation.	93
FS S n1 n2	Defines the left and right empty character space of a normal-sized character.	94
FS SI	Sets the print of half-sized characters.	95
FS SO	Sets double width mode.	92
FS rn	Sets superscript or subscript print mode (1/4 normal size).	95
FS T n1 n2	Defines the left and right empty character space of a half-sized character.	94
FS U	Define half-sized character as half of a normal sized character.	94
FS vn	Sets -Cancels line drawing character connection mode.	97
FS V	Resets print of half-sized characters.	95
FS W n	Sets -Resets quadruple print mode.	92
FS xn	Sets print quality level for the DBCS font set.	96

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Preface

Print Job Processing

There are no EPSON/IBM controls that explicitly define print job boundaries. A print job for the Printronix S809 is established by the host system and consists of any set of related print objects. A print job could be as short as one character or could be many pages long.

As an aid to the printer operator, the printer provides a **DATA** indicator on the operator panel. When the **DATA** indicator is flashing, it indicates that data is currently being received, processed, or printing, or that data is buffered in the printer but cannot be immediately printed. If the **DATA** indicator is not lit, then all print jobs have been completed.

Configuration parameter values can be changed at any time; however, to obtain predictable results, changes to operator panel configuration parameter values should be made **before** the print job is sent to the printer and **after** the previous print job has completed printing. Changing configuration parameter values while a print job is in progress may cause unpredictable results.

Printronix Company recommends the following to ensure that your print jobs run correctly:

- Establish a known print environment, and end any previous print job. Start each print job with a Set Initial Conditions control or an Initialize Printer controlr. This control resets the printer environment to the default settings. You can then set additional controls depending on your print job environment.
- End each print job with a **FORM FEED** control. This control causes all data to be printed, and the current position is set to the top-of-form position.
- If a print job is abnormally terminated, the job should be canceled. See “Cancel Print” in “Chapter 2. Understanding the Operator Panel” in the Administrator’s Guide for your printer.

Page Printing Concept

The Printronix S809 processes print jobs in terms of pages, as well as in lines and columns. A page is a logical entity whose boundaries are defined by the width and the page length. These boundaries are established during printer initialization using the printer defaults, and can be changed using the Configuration Menu or by issuing the appropriate data stream controls.

As a job prints, the printer controller maintains both the logical position and the physical position on the page. If a print job does not end with a proper job terminator (for example, FORM FEED), then:

- All data for the current page may not print
- The next print job may be misaligned on the form
- Residual data from a previous job could print with the new job.

Page Presentation

Many EPSON/IBM commands (tabs, margins, line spacing, for example) are described in terms of the presentation surface. A presentation surface is a two-dimensional surface upon which the printer positions symbols according to controls embedded in the incoming data stream. The presentation surface is defined in absolute terms by the width and depth parameters of the page size control commands (Set Page Length, Set Horizontal Margins, for example). The physical print position does not move outside the range of these two parameters. The left margin (LM) and right margin (RM) are variable parameters within the presentation surface. The logical print position does not move outside the range of the vertical margins nor outside the horizontal margins + 1. The following figure shows the presentation surface and the

relationships of some of these parameters.

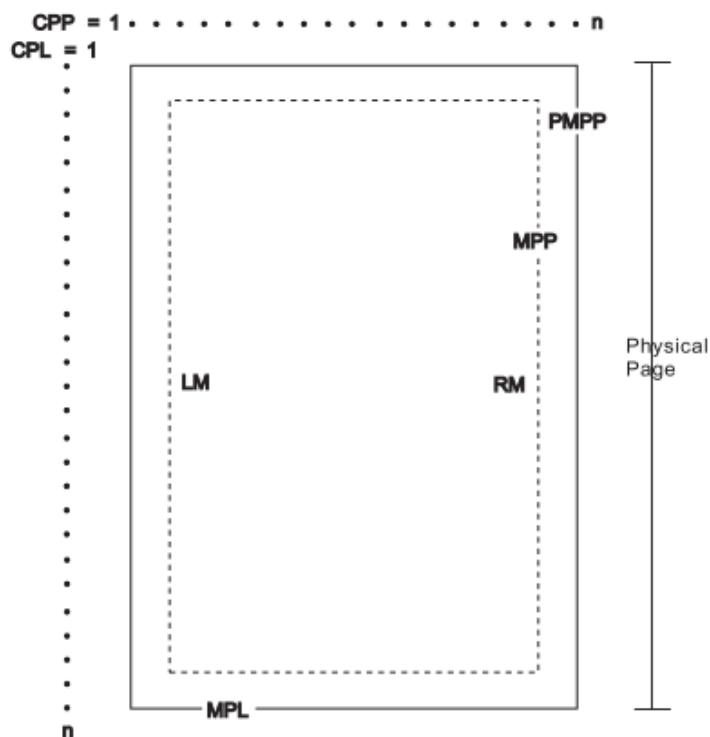


Figure 1 Page Presentation

CPP Current Print Position (LM = CPP = RM).

CPL Current Print Line

MPP Maximum Print Position (in characters at current CPI)

PMPP Physical Maximum Print Position. The largest number of characters that can be placed on one line of the surface (the largest value that MPP can assume).

LM Left Margin

RM Right Margin

MPL Maximum Page Length (in lines at current LPI)

Notes:

1. The host should set the limits of the presentation surface if the default or previous values are not acceptable.

2. The operator should align the physical paper so that it matches the logical presentation surface.

Also created with this surface is a pair of numbers (CPL and CPP) which specify the line number and column number where the next graphic will be printed. These internal values are the logical position on the presentation surface.

The variable parameters have default values which are established when the printer is initialized. The standard power-on defaults are:

MPP (width) Operator panel setting

MPL (depth) Operator panel setting

CPI Operator panel setting

LPI Operator panel setting

LM 0 inches (Column 1)

RM Equal to MPP

HT Horizontal tabs are set at each 8th column, starting with column 9 (9, 17, 25, 33, and so on.)

VT Vertical tabs are all cleared

Chapter 1. EPSON/IBM Commands

The following printer commands are supported by this printer according to the IBM Proprinter XL24-XL24 AGM, IBM 2391+ and EPSON LQ Series.

Print and Line Feed Execution

CR

Prints all received data and the column counter is set to the left margin (IBM/EPSON).

ASCII Code	CR
Hexadecimal Value	X'0D'
Decimal Value	13

This code is a terminator code; when received, it causes any data in the buffer to be printed out. The print head then moves logically to the left margin position. The column counter is set to the left margin value and a line feed is inserted automatically after the carriage return (see the automatic carriage return function in the printer setup). The code cancels the double width printing set by the SO or ESC SO command.

ESC]

Sets a reverse line feed. (IBM)

ASCII Code	ESC]
Hexadecimal Value	X'1B' X'5D'
Decimal Value	27 93

This is a terminator code; it therefore causes the current contents of the print buffer to be printed before advancing the paper by one line at the current vertical spacing. If no data precedes the LF code, or if the preceding data consists of spaces, the code only causes a line feed.

When the line counter reaches the last line of the form (defined by the software or the function menu), the LF code causes a skip to the first line of the next form. This code cancels the double width printing set by the SO code. In IBM mode, the column counter is set to the first column if the automatic carriage return is selected. In EPSON mode, the column is always set to the first column.

ESC 5

Sets an automatic line feed after a carriage return. (IBM)

ASCII Code	ESC 5 n
Hexadecimal Value	X'1B' X'35' n
Decimal Value	27 53 n

If n is equal to 1, this command sets an automatic line feed on receiving of a CR code. If n is equal to 0, this command cancels the automatic line feed.

n	Automatic line feed
0	Disabled
1	Enabled

ESC J**Advances paper n/216 inch. (EPSON/IBMXL24)****Advance paper n/180 inch. (EPSON/IBM XL24AGM)**

ASCII Code	ESC J n
Hexadecimal Value	X'1B' X'4A' n
Decimal Value	27 74 n
Range	1 = n = 255

This is a terminator code; it causes the current contents of the print buffer to be printed before performing a single line feed of n/216 or n/180 of an inch. This command is cancelled after the line feed has been performed. The printing restarts after a line feed from the column at which the command was sent.

ESC j**Feed paper n/216 in reverse direction (EPSON)**

ASCII Code	ESC J n
Hexadecimal Value	X'1B' X'6A' n
Decimal Value	27 106 n
Range	1 = n = 255

This is a terminator code; it causes the current contents of the print buffer to be printed. Then the paper is moved backward of n/216 of an inch. The printing restarts from the column at which the command was sent.

LF**Line Feed (IBM/EPSON).**

ASCII Code	LF
Hexadecimal Value	X'0A'
Decimal Value	10

This is a terminator code; it causes the current contents of the print buffer to be printed before advancing the paper by one line at the current vertical spacing. If no data precedes the LF code, or if the preceding data consists of spaces, the code only causes a line feed.

When the line counter reaches the last line of the form (defined by software or function menu), the LF code causes a skip to the first line of the next form. This code cancels the double width printing set by the SO code. In IBM mode, the column counter is set to the first column if the automatic carriage return is selected. In EPSON mode, the column is always set to the first column.

Format Control**ESC \$****Sets the absolute printing position. (EPSON)**

ASCII Code	ESC & n1 n2
Hexadecimal Value	X'1B' X'24' n1 n2
Decimal Value	27 36 n1 n2
Range	0 = n1 n2 = 255

This command specifies the distance from the left margin to where you want to print subsequent characters. The distance is in number of dots and must be calculated using the following formula:

Margin distance = $n1 + (n2 \times 256)$ where $n2$ is the integer result of the number of dots divided by 256 and $n1$ is the remainder. 1 dot = 1/60 inch. If the selected position is outside the current right margin, the sequence is ignored.

**ESC[**

Sets vertical units. (IBM)

ASCII Code	ESC [\ m1 m2 t1 ... t4
Hexadecimal Value	X'1B' X'5B' X'5C' m1 m2 t1 ... t4
Decimal Value	27 91 92 m1 m2 t1 ... t4
Range	m1 =4 m2 =0 0 = t1 = 255 0 = t2 = 255 t3 =0 t4 = 180 or 216

This command changes the base units for the graphics line spacing commands (ESC J, ESC 3). The default is 1/216 or 1/180 inch.

ESC /

Selects the Vertical Format Unit (VFU) channel. (EPSON)

ASCII Code	ESC / m
Hexadecimal Value	X'1B' X'2F' m
Decimal Value	27 47 m
Range	0 = m = 7

This sequence selects the VFU channel that you want to use. Eight different channels are available. The m parameter represents the channel you want to select.

**ESC **

Sets the relative dot position. (EPSON)

ASCII Code	ESC \ n1 n2
Hexadecimal Value	X'1B' X'5C' n1 n2
Decimal Value	27 92 n1 n2
Range	0 = n1, n2 = 255

This command specifies the distance between the current print head position and the position where you want to print subsequent characters (relative position). The distance is a number of dots and must be calculated using the following formula:

Current position distance = $n1 + (n2 \times 256)$

where $n2$ is the integer result of the number of dots divided by 256 and the $n1$ is the remainder. The unit of dots is 1/120 inch for Draft or 1/180 inch for Letter Quality printing. If the distance is negative (Most Significant Bit of $m2$ equal to 1), the print head is moved to the left of the current position by the number of dots equal to the complement on two of $n1 + (n2 \times 256)$.

ESC 0

Sets vertical spacing to 1/8 inch (IBM/EPSON).

ASCII Code	ESC 0
Hexadecimal Value	X'1B' X'30'
Decimal Value	27 48

This code causes vertical spacing to be set to 1/8 inch.

ESC 1

Sets vertical spacing to 7/72 inch. (IBM)

ASCII Code	ESC 1
Hexadecimal Value	X'1B' X'31'
Decimal Value	27 49

This command causes vertical spacing to be set to 7/72 inch.

ESC +

Sets n/360-inch line spacing. (IBM)

ASCII Code	ESC + n
Hexadecimal Value	X'1B' X'2B' n
Decimal Value	27 43 n
Range	0 = n = 255

This command sets the line spacing to n/360 inch. If the line spacing is changed, it does not affect previous settings for vertical tabs or page length.

ESC 2

Sets the vertical spacing to 1/6 inch. (EPSON)

ASCII Code	ESC 2
Hexadecimal Value	X'1B' X'32'
Decimal Value	27 50

This command causes the vertical spacing to be set to 1/6 inch.

ESC 2

Enables the vertical spacing set by ESC A. (IBM)

ASCII Code	ESC 2
Hexadecimal Value	X'1B' X'32'
Decimal Value	27 50

This command enables the vertical spacing sets by ESC A.

ESC 3

Sets vertical spacing to n/180 inch. (IBM XL24AGM, EPSON)

ASCII Code	ESC 3 n
Hexadecimal Value	X'1B' X'33' n
Decimal Value	27 51 n
Range	1 = n = 255

This sequence sets the vertical spacing to n/180 inch. It is ignored if n is equal to 0.

ESC 3

Sets vertical spacing to n/216 inch. (IBM XL24/ 2391+)

ASCII Code	ESC 3 n
Hexadecimal Value	1B 33 n
Decimal Value	X'27' X'51' n
Range	0 = n = 255

This sequence sets the vertical spacing to n/216 inch.

ESC 4

Sets the current position as top of form (first printable line). (IBM)

ASCII Code	ESC 4
Hexadecimal Value	X'1B' X'34'
Decimal Value	27 52

This sequence sets the first line of the fanfold paper as the current paper position of the form.

ESC A

Sets variable vertical spacing to n/60 inch. (EPSON/IBM XL24AGM)

ASCII Code	ESC A n
Hexadecimal Value	X'1B' X'41' n
Decimal Value	27 65 n

This command changes the default vertical spacing to n/60 inch. The new vertical spacing value is immediately activated.

ESC A

Sets variable vertical spacing to n/72 inch. (IBM XL24 AGM/IBM 2391+)

ASCII Code	ESC A n
Hexadecimal Value	X'1B' X'41' n
Decimal Value	27 65 n

This command changes the default vertical spacing to n/72 inch. The vertical spacing value is stored and activated only after the ESC 2 code is received.

ESC B

Sets vertical tab stops (IBM/EPSON).

ASCII Code	ESC B n1 ... nx 0
Hexadecimal Value	X'1B' X'42' n1 ... nx 0
Decimal Value	27 66 n1 ... nx 0
Range	1 = n = 255

In EPSON mode, it sets the vertical tab stops in the 0 Vertical Format Unit (VFU) channel. This code sets up to 16 vertical tab stops at the line specified by n1, n2 and so on in the 0 VFU channel. The tab stops are memorized as physical positions. In IBM mode, this code sets up to 64 vertical tab stops at the line number specified by n1, n2 and so on in the 0 VFU channel. The tab stops are retained as logical positions.

ESC B NUL

Resets vertical tab stops (IBM/EPSON).

ASCII Code	ESC B NUL
Hexadecimal Value	X'1B' X'42' 00
Decimal Value	27 66 00

This command resets the vertical tab stops in the 0 Vertical Format Unit (VFU) channel.

ESC b

Sets vertical tab stops in one of the 8 Vertical Format Unit channels available. (EPSON)

ASCII Code	ESC b mn1 ... nx 0
Hexadecimal Value	X'1B' X'62' mn1 ... nx 00
Decimal Value	27 98 mn1 ... nx 0
Range	0 = m = 7 1 = n1 ... nx = 255

This sequence sets vertical tabulations in the VFU channel specified by the parameter m.

The VFU channel can be imagined as a blank page where you can set up to 16 vertical tabulations in order to format your page as you like. 8 channels are available and in each of them you can create a sample page that you can recall later. n1 to n16 specify the lines at which vertical tabulations must be set.

The values of n must be in ascending order. If you change the vertical spacing, the vertical tabulations set are not cancelled and they maintain their physical position on the page.

The vertical tabulations set in the channel specified by the m parameter are executed by the VT code when the specific channel is selected by the ESC / command, this code is executed as a line feed.

ESC b NUL

Resets vertical tab stops in one of the 8 Vertical Format Unit channels available. (EPSON)

ASCII Code	ESC b NUL
Hexadecimal Value	X'1B' X'62' X'00'
Decimal Value	27 98 0

This command resets the vertical tab stops in one of the 8 Vertical Format Unit channels available.

ESC C 0 n

Sets form length to n inches (IBM/EPSON).

ASCII Code	ESC C 0 n
Hexadecimal Value	X'1B' X'43' X'00' n
Decimal Value	27 67 0 n
Range	1 = n = 24

This command sets the form length to the number of inches specified by n. The current position of the paper is assumed as the top-of-form.

ESC C n

Sets form length to n lines (IBM/EPSON).

ASCII Code	ESC C n
Hexadecimal Value	X'1B' X'43' n
Decimal Value	27 67 n
Range	1 = n = 255

This command sets the form length to the number of lines specified by n at the current vertical spacing. The current position of the paper is assumed as top-of-form.

ESC D

Sets horizontal tab stops (IBM/EPSON).

ASCII Code	ESC D n1 n2 ... nx 0
Hexadecimal Value	X'1B' X'44' n1 n2 ... nx 00
Decimal Value	27 68 n1 n2 ... nx 0
Range	1 = n = 255

This sequence sets up to 28 (IBM mode) or 32 (EPSON mode) horizontal tab stops after canceling the current setting. The n1 to nx parameters specify the number of columns at which horizontal tab stops are required and must be entered in the sequence in ascending numerical order. Any value outside this range is ignored. In IBM mode, the tab stop position is retained as a logical position in the page so that it is affected by changing the horizontal spacing. The columns are numbered 1 through 136. In EPSON mode, the tab stop position set by ESC D is retained as the physical position on the page and therefore it is not affected by changing the horizontal spacing. The physical position of the tab stop depends on the horizontal spacing in operation when ESC D is used. The ESC D 0 cancels all active tab stops.

ESC d

Spaces forwards relative dot position. (IBM)

ASCII Code	ESC d n1 n2
Hexadecimal Value	X'1B' X'64' n1 n2
Decimal Value	27 100 n1 n2
Range	0 = n1 n2 = 255

This command moves the print carriage $(n1 + (n2 * 256)) / 120$ of an inch displacement on the right of its current dot position. If the selected position is outside the current right margin, it is forced to the last column.

ESC e

Spaces backward relative dot position. (IBM)

ASCII Code	ESC e n1 n2
Hexadecimal Value	X'1B' X'65' n1 n2
Decimal Value	27 101 n1 n2
Range	0 = n1 n2 = 255

This command moves the print carriage $(n1 + (n2 * 256)) / 120$ of an inch displacement on the left of its current dot position. If the selected position is outside the current left margin, it is forced to the first column.

ESC I

Sets left margin. (EPSON)

ASCII Code	ESC I n
Hexadecimal Value	X'1B' X'6C' n
Decimal Value	27 108 n
Range	0 = n = 255

This code sets the left margin at the current horizontal spacing. It must be sent at the beginning of the line. The n parameter specifies the number of columns. For each type of horizontal spacing there is a different range of possible values, as shown in the following table:

Character Width	Horizontal Spacing	Range of columns
Double Width	5 cpi	0 = n = 67
	6 cpi	0 = n = 80
	7.5 cpi	0 = n = 100
	8.5 cpi	0 = n = 114
	10 cpi	0 = n = 134

Character Width	Horizontal Spacing	Range of columns
Normal	10 cpi	0 = n = 134
	12 cpi	0 = n = 160
	15 cpi	0 = n = 201
	17 cpi	0 = n = 229
	20 cpi	0 = n = 255
	24 cpi	0 = n = 255

Any value outside the accepted range is ignored and the previous setting remains in effect. The left margin must be smaller than the right margin. The physical position set for the left margin does not change if the horizontal spacing is modified. This command overrides the menu setting.

ESC N

Sets the skipover perforation to n lines (IBM/EPSON).

ASCII Code	ESC N n
Hexadecimal Value	X'1B' X'4E' n
Decimal Value	27 78 n
Range	1 = n = 127 (EPSON mode) 1 = n = 255 (IBM mode)

The skipover perforation is the sum of the top and bottom margin values at the selected vertical spacing. The n parameter must be less than the current form length. The skipover is retained as the physical position on the page. It is cancelled by ESC O or changing the form length.

The skipover value, when accepted, sets the top and bottom margins according to the operator panel setting (see the Administrator's Manual):

If the top margin set using the operator panel is greater than the skipover value, the following value of the margins is set:

Top margin = skipover value
Bottom margin = 0

If the top margin set using the operator panel is less than or equal to the skipover value, then the following value of the margins is set:

Top margin = operator panel value
Bottom margin = the difference between skipover value and top margin value

If the sum of the top and bottom margins values set using the operator panel is less than the skipover value, the following values for the margins is set:

Top margin = operator panel value
Bottom margin = the difference between skipover value and top margin value

Changing the vertical spacing does not affect the skipover distance. This can be changed by another ESC N command or can be reset by the ESC O command, which resets the skipover value to 0. The skipover perforation is performed when the end of the page is reached with a LF, VT or FF code and not with the ESC J or ESC C command. The skipover perforation is cancelled and must be reset.

ESC O

Disables the skipover perforation (IBM/EPSON).

ASCII Code	ESC O
Hexadecimal Value	X'1B' X'4F'
Decimal Value	27 79

This sequence sets the number of lines of the skipover perforation to the value 0. Any skip perforation set by ESC N is cancelled.

ESC Q

Sets the right margin. (EPSON)

ASCII Code	ESC Q n
Hexadecimal Value	X'1B' X'51' n
Decimal Value	27 81 n
Range	1 = n = 225

This code sets the line length at the current horizontal spacing. It must be sent at the beginning of the line.

The n parameter specifies the number of columns and for each type of horizontal spacing there is a range of values, as shown in the following table:

Character Width	Horizontal Spacing	Range of columns
Double Width	5 cpi	1 <= n <= 67
	6 cpi	1 <= n <= 81
	7.5 cpi	1 <= n <= 101
	8.5 cpi	1 <= n <= 111
	10 cpi	1 <= n <= 135
Normal	10 cpi	1 <= n <= 135
	12 cpi	1 <= n <= 162
	15 cpi	1 <= n <= 203
	17 cpi	1 <= n <= 232
	20 cpi	1 <= n <= 255
	24 cpi	1 <= n <= 255

Any value outside the accepted range is ignored and the previous setting remains in effect. The right margin must be greater than the left margin. The physical position set for the right margin does not change if the horizontal spacing is modified.

ESC R

Sets horizontal and vertical tab stops to default values. (IBM)

ASCII Code	ESC R
Hexadecimal Value	X'1B' X'52'
Decimal Value	27 82

This command sets horizontal tab stops every eight columns starting from column 9 and cancels all vertical tab stops.

ESC SP

Sets intercharacter space. (EPSON)

ASCII Code	ESC SP™ n
Hexadecimal Value	X'1B' X'20' n
Decimal Value	27 32 n
Range	0 = n = 225

This command sets the intercharacter space to n/120 inch in Draft printing and n/180 inch in Quality printing.

ESC X

Sets left and right margins. (IBM)

ASCII Code	ESC X n1 n2
Hexadecimal Value	X'1B' X'58' n1 n2
Decimal Value	27 88 n1 n2
Range	0 = n = 134 (left margin) 2 = n = 136 (right margin)

This command sets the left and right margins at the same time. The n1 and n2 parameters indicate respectively the number of columns for the left and right margins at the current spacing. These margins are retained in terms of absolute displacement from the physical left edge of the page. Use a CR immediately after ESC X n to establish the print head position relative to the new margin setting.

If n1 is equal to 0, the current left margin of the page is used. If n2 is equal to 1, the current right margin of the page is used. The left margin value must be less than the right margin value. The right margin value must not exceed the physical right edge of the paper; otherwise the maximum acceptable value for the right margin will be set.

FF

Advances paper to the top of the next page (IBM/EPSON).

ASCII Code	FF
Hexadecimal Value	X'0C'
Decimal Value	12

This code is a terminator code, when received, causes all data in the print buffer to be printed out. Then it advances the paper to the first printable line of the next form. The line counter is set to the first line value and the column counter is set to the left margin value. This code cancels the double width printing set by SO code.

HT

Logically moves the print carriage to the next horizontal tab stop (IBM/EPSON).

ASCII Code	HT
Hexadecimal Value	X'09'
Decimal Value	9

This code logically moves the print carriage to the next horizontal tab stop as defined by ESC D. Up to 28 (IBM mode) or 32 (EPSON mode) horizontal tab stops can be set. The HT code is ignored if no tab stop is set, the current print carriage position is moved past the last tab position, or the tab stop is on or beyond the right margin. When the printer is powered on, the tab stops are set every eight columns (default).

In EPSON mode, the default tab stops are retained as logical positions in the page that are affected by changing the horizontal spacing. The tab stop positions set by ESC D are retained as physical positions on the page and are not affected by changing the horizontal spacing. When double width printing is selected, the tab stop setting must take into account that each character occupies two columns. In IBM mode, the tab stops, both the default and those set by ESC, are retained as logical positions in the page that are affected by changing the horizontal spacing. The horizontal tab stops can be changed by the ESC D command.

VT

Advances paper to the next vertical tab stop of the selected VFU channel (IBM/EPSON).

ASCII Code	VT
Hexadecimal Value	X'0B'
Decimal Value	11

This is a terminator code and when received causes the contents of the print buffer to be printed before advancing the paper to the next vertical tab stop set by the ESC B or the ESC b commands.

This code is run normally if vertical tab stops follow the current print position. It runs like an FF code (EPSON mode) or like a LF code (IBM mode), if the vertical tab stops follow the bottom of form position (corresponding to the form length if the bottom of the form has not been set), or if the current position is beyond the last vertical tab stop. It runs like an LF code if no vertical tab stops have been set by the ESC B or ESC b commands.

In EPSON mode, the vertical tabulations are referred to the VFU channel selected by the ESC / m.lfno. VFU channels have been selected, the printer assumes the default channel 0.

This command cancels the double width printing set by SO or ESC SO command.

Print Mode

DC2

Sets 10 cpi printing. (IBM)

ASCII Code	DC2
Hexadecimal Value	X'12'
Decimal Value	18

This is a terminator code. It causes all data present in the print buffer to be printed. This command is accepted at any position within the line. The character that follows this command is printed at 10 cpi.

DC2

Cancels compressed printing. (EPSON)

ASCII Code	DC2
Hexadecimal Value	X'12'
Decimal Value	18

This is a terminator code. It causes all data present in the print buffer to be printed. This command is accepted at any position within the line. The character that follows this command is printed as follows:

17 CPI . 10 CPI
20 CPI . 12 CPI

DC4

Cancels double width printing (IBM/EPSON).

ASCII Code	DC4
Hexadecimal Value	X'14'
Decimal Value	20

This code cancels the double width printing set by SO or ESC SO code. It has no effect if the ESC W or ESC ! command is set to double width.

ESC -

Sets or cancels underlined printing (IBM/EPSON).

ASCII Code	ESC - n
Hexadecimal Value	X'1B' X'2D' n
Decimal Value	27 45 n

Enables or disables underlined printing. See the following table:

n	Underlined Printing
1	enabled
0	disabled

ESC !

Sets printing style. (EPSON)

ASCII Code ESC ! n
 Hexadecimal Value X'1B' X'21' n
 Decimal Value 27 33 n

This command is used to select any valid combination of printing attributes. Each printing attribute is selected by the nparameter, as specified in the following page:

n	Attribute
0	10 cpi
1	12 cpi
2	Proportional
4	Compressed
8	Emphasized
16	Double Strike
32	Double Width
64	Italics
128	Underline

To print the desired combination of printing attributes, calculate the nparameter by adding up the values of each attribute.

ESC(-

Sets score line. (EPSON)

ASCII Code ESC (- n1 n2 m d1 d2
 Hexadecimal Value X'1B' X'28' X'2D' n1 n2 m d1 d2
 Decimal Value 27 40 45 n1 n2 md1 d2
 Range n1 =3
 n2 =0
 m=1
 1 = d1 = 3
 d2 =0,1,2,5,6

This command enables or disables scoring of all characters and spaces following the command according to the following parameters:

d1	Line
1	Underline
2	Strikethrough
3	Overscore

d2	Line
0	Cancel score line
1	Single continuous line
2	Double continuous line
5	Single broken line
6	Single broken line

Any combination of scoring may be used at the same time and are independent of each other. Graphics characters are not scored.

ESC [-

Selects the score line. (IBM 2391 + only)

ASCII Code	ESC [- n1 n2 loc type
Hexadecimal Value	X'1B' X'5B' X'2D' n1 n2 loc type
Decimal Value	27 91 45 n1 n2 loc type
Range	n1 =2 n2 =0

This command selects several forms of overscore, underscore, and strikethrough.

To select loc: To select type:

loc	Selection	type	Selection
1	Underscore	0	Cancels Line
2	Strikethrough	1	Single Line
3	Overscore	2	Double Line
		255	Cancels all score selections

ESC :

Sets 12 CPI. (IBM)

ASCII Code	ESC :
Hexadecimal Value	X'1B' X'3A'
Decimal Value	27 58

This is a terminator code. It causes all data present in the print buffer to be printed. Subsequent data is printed at 12 cpi. This command is accepted at any position within the line. The setting of another horizontal spacing resets this command.

ESC <

Prints characters for one line from left to right. (EPSON)

ASCII Code	ESC <
Hexadecimal Value	X'1B' X'3C'
Decimal Value	27 60

This command causes the printing of one line from left to right.

ESC [@**Selects the printing type style. (IBM 2391 + only)**

ASCII Code	ESC [@ 40m1 0m3 m4
Hexadecimal Value	X'1B' X'5B' X'40' 04*00*m1 00*m3 m4
Decimal Value	27 91 64 40m1 0m3 m4

(*) These values are constants.

This command is used to modify the type style of the character and the number of line spacing. Use this command for:

1. Italic printing
2. Single-high character
3. Double-high character
4. Single-wide character
5. Double-wide character
6. Single Line Feed
7. Double Line Feed

These selections may be combined, for example, italic print with double height or doublewide character and double line feed.

See the following tables for m1, m3 and m4 selections:

m1	Selection	m3	Selection	m4	Selection
0	No Change	0	No Change	0	No Change
1	Start Italic Printing	1	Single-High Character	1	Single-Wide Character
2	Stop Italic Printing	2	Double-High Character	2	Double-Wide Character
4	Start Outline	4	Single Line Feed	4	Single Line Feed
8	Stop Outline	8	Double Line Feed	8	Double Line Feed
16	Start Shadow	16			
32	Stop Shadow	32			

ESC [@**Sets double high printing and double line feed. (IBM)**

ASCII Code	ESC [@ I h m1 m2 m3 m4
Hexadecimal Value	X'1B' X'5B' X'40' I h m1 m2 m3 m4
Decimal Value	27 91 64 I h m1 m2 m3 m4

I= normally 4, h= normally 0, m1 =0, m2 =0

This command sets height, width, and vertical spacing.

The land hparameters specify the number of mode bytes mx contained in the sequence.

The m3 and m4 parameters specify the printing characteristics.

The m3 parameter controls both line spacing and character height. It has two parts: a high-order half-byte of m3 controls the line spacing and the low-order half-byte controls the character height.

m3	Character Height	Line Spacing
0	No Change	No Change
1	Standard character height	Line feeds unchanged
2	Double character height	Line feeds unchanged
16	Character height unchanged	Normal line feeds
17	Standard character height	Normal line feeds
18	Double character height	Normal line feeds
32	Character height unchanged	Double line feeds
33	Standard character height	Double line feeds
34	Double character height	Double line feeds

The m4 parameter specifies the character width. Only the low-order half-byte is significant in this mode byte. The high-order half-byte is ignored.

m4	Character Width	Line Spacing
0	No change	Standard width character
1	Double width character	No change
2	No change	No change

ESC [d

Set the print quality. (IBM 2391 + only)

ASCII Code	ESC [d 10n
Hexadecimal Value	X'1B' X'5B' X'64' 0100n
Decimal Value	27 91 100 10n

This command sets the print quality to draft or LQ print.

n	Types
0	No Change
From 64 to 127	Draft
From 128 to 254	Letter Quality
255	Initialization on NVRAM values

ESC [I**Sets font and pitch of a character. (IBM 2391 + only)**

ASCII Code	ESC [I 2 0 m n
Hexadecimal Value	X'1B' X'5B' X'49' 02 00 m n
Decimal Value	27 91 73 2 0 m n

This command allows you to modify the character's font and style of pitch type.

The values 2 and 0 are constants. If font and pitch locks are active, this command is ignored. To select the values for the variables m and n, which identify the pitch and the font type style to use, refer to the table below.

1. Identify the type style (pitch and font) to use in the left column (pitch).
2. For the hexadecimal values of m and n, look across the row to the second column (Hex mn)
3. For the decimal values for m and n, look across the row to the third column (Decimal mn).
4. Substitute these values for m and n in the printer command syntax.

Pitch	Hexadecimal m	Hexadecimal n	Decimal m	Decimal n	Dec. Value (m x 256 + n)
Courier					
10	X'00'	X'00B'	0	11	11
12	X'01'	X'EB'	1	235	491
15	X'01'	X'EC'	1	236	492
17	X'01'	X'ED'	1	237	493
20	X'01'	X'EE'	1	238	494
24	X'01'	X'1E'	1	30	286
Gothic					
10	X'00'	X'24'	0	36	36
12	X'01'	X'8F'	1	143	399
15	X'01'	X'8E'	1	236	398
17	X'01'	X'8D'	1	237	397
20	X'01'	X'8C'	1	238	396
24	X'01'	X'20'	1	30	288
PS	X'01'	X'AE'	1	174	174
Script					
10	X'01'	X'D4'	1	212	468
12	X'01'	X'D5'	1	213	469
15	X'01'	X'D6'	1	214	470
17	X'01'	X'D7'	1	215	471
20	X'01'	X'D8'	1	216	472
24	X'01'	X'24'	1	36	292
PS	X'01'	X'C8'	0	200	200

ESC _**Sets or cancels overscore printing. (IBM)**

ASCII Code	ESC _ n
Hexadecimal Value	X'1B' X'5F' n
Decimal Value	27 95 n

Enables or disables overscore printing. See the following table:

n	Overscore Printing
1	Enabled (all spaces and characters that follow are overscored)
0	Disabled

ESC 4**Sets italics printing mode. (EPSON)**

ASCII Code	ESC 4
Hexadecimal Value	X'1B' X'34'
Decimal Value	27 52

Sets the style attribute of the font to italic. This command selects italic printing even if the italic character table is not selected.

ESC 5**Cancels italics printing. (EPSON)**

ASCII Code	ESC 5
Hexadecimal Value	X'1B' X'35'
Decimal Value	27 53

Sets the style attribute of the font to normal (cancels the italic style attribute previously selected with the ESC 4 command).

ESC a**Sets Letter Quality justification printing. (EPSON)**

ASCII Code	ESC a n
Hexadecimal Value	X'1B' X'61' n
Decimal Value	27 97 n
Range	0 = n = 3

Selects from four types of justification, as follows:

n	Justification
0	Left
1	Centered
2	Right
3	Allows an uniform printing between the margins when the buffer is full.

ESC E

Sets emphasized printing (IBM/EPSON).

ASCII Code	ESC E
Hexadecimal Value	X'1B' X'45'
Decimal Value	27 69

This command starts emphasized printing. The print head strikes each dot twice to produce a darker, bolder character. The second strike is offset horizontally.

ESC F

Cancels emphasized printing (IBM/EPSON).

ASCII Code	SC F
Hexadecimal Value	X'1B' X'46'
Decimal Value	27 70

This command ends emphasized printing. This escape sequence cancels emphasized printing that was started by ESC E.

ESC G

Sets double strike printing (IBM/EPSON).

ASCII Code	ESC G
Hexadecimal Value	X'1B' X'47'
Decimal Value	27 71

This command starts double-strike printing. ESC G may be canceled by ESC H.

ESC g

Sets 15 CPI. (EPSON)

ASCII Code	ESC g
Hexadecimal Value	X'1B' X'67'
Decimal Value	27 103

Subsequent data is printed at 15 cpi. This command is accepted at any position within the line. If you change the pitch during proportional mode (selected with the ESC p command), the change takes effect when the printer exits proportional mode.

ESC H

Cancels double strike printing (IBM/EPSON).

ASCII Code	ESC H
Hexadecimal Value	X'1B' X'48'
Decimal Value	27 72

This command cancels double-strike printing set with the ESC G command.

ESC I

Selects printing type for resident and DLL characters. (IBM)

ASCII Code	ESC I n
Hexadecimal Value	X'1B' X'49' n
Decimal Value	27 73 n

This command selects the resident or the download font in Draft or LQ printing mode. It is ignored if you select a font that has not been downloaded or has been overwritten. See the following table:

n	Resident font	n	Download font
0	Draft 10 cpi	4	Draft 10 cpi
2	LQ10cpi	6	LQ10cpi
3	Proportional	7	Proportional
8	Draft 12 cpi	12	Draft 12 cpi
10	LQ 12 cpi	14	LQ 12 cpi
16	Draft 17 cpi	20	Draft 17 cpi
18	LQ 17 cpi	22	LQ 17 cpi

ESC M

Selects 10.5 point, 12 CPI. (EPSON)

ASCII Code	ESC M
Hexadecimal Value	X'1B' X'4D'
Decimal Value	27 77

This is a terminator code. It causes all data present in the print buffer to be printed. Subsequent data is printed at 12 cpi, if you previously set the compressed spacing by sending the SI or ESC SI command. If you select proportional printing, this command is stored.

ESC P

Selects 10.5 point, 10 cpi. (EPSON)

ASCII Code	ESC P n
Hexadecimal Value	X'1B' X'50' n
Decimal Value	27 80 n

This command selects 10.5 point, 10 cpi character printing. If you change the pitch during proportional mode (selected with the ESC p command) the change takes effect when the printer exits proportional mode.

ESC P

Sets or cancels proportional printing. (IBM)

ASCII Code	ESC P n
Hexadecimal Value	X'1B' X'50' n
Decimal Value	27 80 n
Range	1 = n = 255

This code is a terminator code. It causes all data in the print buffer to be printed. Then if the n parameter is equal to 1, the subsequent data is printed in proportional mode. If the n parameter is equal to 0, proportional mode is reset. If the any horizontal spacing command is sent to the printer when the proportional printing is set, the command is stored and activated as soon as the proportional printing is reset.

ESC p

Sets or cancels proportional printing. (EPSON)

ASCII Code	ESC p n
Hexadecimal Value	X'1B' X'70' n
Decimal Value	27 112 n
Range	1 = n = 255

This command selects the proportional or fixed spacing according to the following values:

n	Proportional Printing
0	Returns to current fixed character pitch
1	Selects proportional character spacing

ESC S

Sets subscript or superscript printing (IBM/EPSON).

ASCII Code	ESC S n
Hexadecimal Value	X'1B' X'53' n
Decimal Value	27 83 n

Selects subscript or superscript printing. See the following table:

n	Selection
0	Subscript Print enabled
1	Superscript Print enabled

Proportional printing of subscript or superscript characters is performed at 2/3 of the proportional character width. Use the ESC T command to cancel subscript or superscript printing.

ESC SI

Sets 17/20 cpi (IBM).

ASCII Code	SI or ESC SI
Hexadecimal Value	X'0F' or X'1B' X'0F'
Decimal Value	15 or 27 15

This command sets horizontal spacing to 17 or 20 cpi. DC2 code cancels this mode and returns spacing to 10 characters per inch.

ESC SI

Sets compressed printing (EPSON).

ASCII Code	SI or ESC SI
Hexadecimal Value	X'0F' or X'1B' X'0F'
Decimal Value	15 or 27 15

This command is accepted at any position within the line. The setting of this command depends on the horizontal spacing previously set:

10 CPI	17 CPI
12 CPI	20 CPI
Proportional	½ width

The DC2 code cancels the compressed printing.

ESC SO

Sets double width printing (one line) (IBM/EPSON).

ASCII Code	SO or ESC S0
Hexadecimal Value	X'0E' or X'1B' X'0E'
Decimal Value	14 or 27 14

This code causes subsequent data in the same line to be printed as double width characters. It is canceled by the CR, LF, VT, FF and DC4 codes or when the buffer is full.

ESC s

Sets and resets Quiet printing. (EPSON)

ASCII Code	ESC s n
Hexadecimal Value	X'1B' X'73' n
Decimal Value	27 115 n

This command controls print speed as follows:

n	Selection
0	Normal speed printing
1	Quiet speed printing

ESC T

Cancels subscript or superscript printing (IBM/EPSON).

ASCII Code	ESC T
Hexadecimal Value	X'1B' X'54'
Decimal Value	27 84

This command cancels subscript or superscript printing started with the ESC S command.

ESC W

Sets or cancels double width printing (IBM/EPSON).

ASCII Code	ESC W n
Hexadecimal Value	X'1B' X'57' n
Decimal Value	27 87 n
Range	0 = n = 1

Enables or disables double width printing. See the following table:

n	Selection
0	Double Width Printing disabled
1	Double Width Printing enabled

ESC w

Sets or cancels double height printing. (EPSON)

ASCII Code	ESC w n
Hexadecimal Value	X'1B' X'77' n
Decimal Value	27 119 n
Range	0 = n = 255

Enables or disables double-height printing of all characters. The first line of a page is not doubled if the ESC w command is sent on the first line; all following lines are printed at double-height. Double-height printing overrides superscript, subscript, and condensed. Superscript, subscript, and condensed print resumes when double-height printing is canceled. See the following table:

n	Selection
0	Double Height Printing disabled
1	Double Height Printing enabled

ESC x

Selects Letter Quality or Draft. (EPSON)

ASCII Code	ESC x n
Hexadecimal Value	X'1B' X'78' n
Decimal Value	27 120 n

This command selects either LQ or Draft printing according to the following values:

n	Selection
0	Draft printing
1	Letter Quality printing

If you select proportional spacing with the ESC p command during Draft printing, the printer prints an LQ font instead. When you cancel proportional spacing with the ESC p command, the printer returns to Draft printing.

SI**Sets compressed printing. (IBM)**

ASCII Code	SI
Hexadecimal Value	X'0F'
Decimal Value	15

This command sets horizontal spacing to 17 or 20 cpi. DC2 code cancels this mode and returns spacing to 10 characters per inch.

SI**Sets compressed printing. (EPSON)**

ASCII Code	SI
Hexadecimal Value	X'0F'
Decimal Value	15

This command is accepted at any position within the line. DC2 code cancels compressed printing. The setting of this command depends on the horizontal spacing previously set

10 CPI .	17 CPI
12 CPI .	20 CPI
Proportional	½ width

DC2 code cancels compressed printing.

SO**Sets double width printing (one line) (IBM/EPSON).**

ASCII Code	SO
Hexadecimal Value	X'0E'
Decimal Value	14

This code causes subsequent data in the same line to be printed as double width characters. It is cancelled by the CR, LF, VT, FF and DC4 codes or when the buffer is full.

Character Set

ESC [T

Selects a Code page (IBM).

ASCII Code	ESC [T 4000HcLc
Hexadecimal Value	X'1B' X'5B' X'54' 04000000HcLc
Decimal Value	7 91 84 4000HcLc

This sequence allows you to change the current code page. If an unavailable code page is specified, this command is ignored. The digits 04000000(hexadecimal) and 4000(decimal) are constant. To calculate Hc Lc for a code page that is not shown: If your code page has an alphabetic character, such as 437G, add 10,000 to the code page number, then divide by 256.

- The whole number result is the Hc value
- The remainder is the Lc value.

Hc	Lc		Hc	Lc		Hc	Lc		Hc	Lc	
1	181	CP437	3	96	CP864	33	143	8859/1	4	229	CP1253
3	122	CP437G	3	97	CP865	33	144	8859/2	4	230	CP1254
33	129	CP437 Slavic	3	98	CP866	33	145	8859/3	4	231	CP1255
33	82	CP850	3	99	CP867	33	146	8859/4	4	232	CP1256
3	83	CP851	3	108	CP876	33	147	8859/5	4	233	CP1257
3	84	CP852	3	109	CP877	33	148	8859/6	33	130	FARSI 1
3	85	CP853	4	74	CP1098	33	149	8859/7	33	131	FARSI 2
3	87	CP855	33	123	96 GREEK	33	150	8859/8			
3	89	CP857	33	124	GOST	33	151	8859/9			
3	90	CP858	33	125	TASS	3	155	8859/15			
3	92	CP860	33	126	MAZOWIA	4	226	CP1250			
3	94	CP862	33	128	UKRANIAN	4	227	CP1251			
3	95	CP863	33	138	KOI8-U	4	228	CP1252			

ESC \

Prints characters from all characters table. (IBM)

ASCII Code	ESC \ n1 n2
Hexadecimal Value	X'1B' X'5C' n1 n2
Decimal Value	27 92 n1 n2
Range	0 = n1 = 255 0 = n2 = 255

This command prints the next $n_1 + n_2 \times 256$ characters from the table of all printable characters.

The total number of characters that will be printed from the table of all printable characters is equal to $n_1 + (n_2 \times 256)$. For example, to print 300 characters from the table of all printable characters: $n_1 = 44$, $n_2 = 1$.

The control codes are not recognized as long as this sequence is active. The space character is printed as an unassigned character.

ESC ^**Prints a single character from the all characters table. (IBM)**

ASCII Code	ESC ^ n
Hexadecimal Value	X'1B' X'5E' n
Decimal Value	27 94 n
Range	0 = n = 255

This command prints the next character from the all characters table. This sequence prints only one character from the all character table.

ESC 6**Selects the Character Set 2 (EPSON, IBM).**

ASCII Code	ESC 6
Hexadecimal Value	X'1B' X'36'
Decimal Value	27 54

This command selects the character set 2.

ESC 7**Selects the Character Set 1 (IBM).**

ASCII Code	ESC 7
Hexadecimal Value	X'1B' X'37'
Decimal Value	27 55

This command selects the character set 1.

ESC k**Selects the LQ fonts. (EPSON)**

ASCII Code	ESC k n
Hexadecimal Value	X'1B' X'6B' n
Decimal Value	27 107 n

Selects one of the available fonts in Letter Quality. If Draft mode is selected when this command is sent, the new LQ font is selected when the printer returns to LQ printing.

n	Types	n	Types	n	Types	n	Types	n	Types
1	Gothic	2	Courier	3	Prestige	4	Script	5	OCR-B
6	OCR-A	7	Presentor	11	Boldface Prop.	181	Block Char.		

Boldface available if the Command ESC p1 (proportional) is sent.

ESC R**Selects Nation character set. (EPSON)**

ASCII Code	ESC R n
Hexadecimal Value	X'1B' X'52' n
Decimal Value	27 82 n

Range 0 = n = 13

This code causes the national character set to be selected according to the parameter n. See the following table:

n	National Character Sets	n	National Character Sets	n	National Character Sets
0	USA	5	Sweden	10	Denmark-II
1	France	6	Italy	11	Spain-II
2	Germany	7	Spain-I	12	Latin America
3	United Kingdom	8	Japan		
4	Denmark-I	9	Norway		

ESC t

Selects characters table. (EPSON)

ASCII Code ESC t n
 Hexadecimal Value X'1B' X'74' n
 Decimal Value 27 116 n
 Range 0 = n = 3

Selects the upper half (from 128 to 255) from the character table.

n	Character Tables
0	Standard Italic Character Set
1	ASCII Character Set
2	Remaps DLL Character Set from position 0-127 to 128-255

Download Character

ESC %

Selects user-defined character set. (EPSON)

ASCII Code ESC & n
 Hexadecimal Value X'1B' X'25' n
 Decimal Value 27 37 n

This command switches between normal (resident) and user-defined (downloaded) characters:

n	Selection
1	Selects the use of downloaded character set in RAM
0	Selects the use of resident character set in ROM

ESC &

Defines the 24-pin download characters. (EPSON)

ASCII Code ESC & NUL n m a0 a1 a2 d1 ... dx
 Hexadecimal Value X'1B' X'26' 00 n m a0 a1 a2 d1 ... dx
 Decimal Value 27 38 00 n m a0 a1 a2 d1 ... dx
 Range 0 = n= 127
 0 = m= 127
 0<= dx < = 255
 a0 a1 a2: see below

This escape sequence is used to download fonts to the printer. Once fonts have been downloaded, they can be selected by ESC % n.

Parameter n is the character position of the first character and parameter m is the character position of the last character to be downloaded. For example, to download character "RST" the user would specify n=52H and m=54H. Characters must be downloaded to consecutive positions after the first character. The parameters a0, a1, and a2 must be sent for each character being downloaded and are known as the attribute bytes. Parameter a0 specifies the number of dot columns to be added before the character.

Parameter a1 specifies the width of the character. Parameter a2 specifies the number of dot columns to add after the character. The parameters d1 ... dx represent the dot column data being downloaded for each character. 2 or 3 data bytes represent 1 column of dots depending upon the print mode type as shown below. Draft, Letter Quality, superscript, and subscript fonts can be downloaded. It is necessary to select the desired print mode prior to sending the download data. Each dot column has a width of 1/120" in Draft and 1/360 in Letter Quality. Following are limits of parameters a0, a1, and a2 for LQ Draft and Super/Subscript print mode at various character pitches.

	LQ					DRAFT	
	10 cpi	12 cpi	15 cpi	Prop	Script	Norm	Script
a1	29	23	15	39	23	9	7
a0 + a1 + a2	36	30	24	42	36	12	12

The mapping of data bits to wires is as follows:

BYTE #	BIT #	LQ WIRE #	DRAFT WIRE #	SUBSCRIPT WIRE #	SUBSCRIPT WIRE #
1	7	1	1	1	9
	6	2	2	2	10
	5	3	3	3	11
	4	4	4	4	12
	3	5	5	5	13
	2	6	6	6	14
	1	7	7	7	15
	0	8	8	8	16
2	7	9	9	9	17
	6	10	10	10	18
	5	11	11	11	19
	4	12	12	12	20
	3	13	13	13	21
	2	14	14	14	22
	1	15	15	15	23
	0	16	16	16	24
3	7	17	17	Note: Only 2 Bytes are required for superscript/subscript characters.	
	6	18	18		
	5	19	19		
	4	20	20		
	3	21	21		
	2	22	22		
	1	23	23		
	0	24	24		

If a data bit has a value of 1, the corresponding wire is fired. If a data bit has a value of 0, the wire is not fired. In general, the user of this feature must be careful that the number of bytes of downloaded information is equal to 3 x width of the character being defined (a1) or the results will be unpredictable. Only one print mode type may be downloaded at a time. That is, if draft characters have been

downloaded, then selecting Letter Quality and downloading characters will cause the draft download characters to be cleared. This applies similarly to script characters.

ESC :

Copies characters from ROM to RAM. (EPSON)

ASCII Code ESC : NULn0
 Hexadecimal Value X'1B' X'3A' 00n00
 Decimal Value 27 58 n0

This code copies the draft character generator in ROM into RAM area dedicated to the user-defined characters. Also Courier or Gothic character generator font from ROM is copied to RAM memory according to the following values of n parameter:

n	Selection	n	Selection	n	Selection
1	Gothic	2	Courier	4	Script
5	OCR-B	6	OCR-A	182	DLL

ESC =

Defines downloaded characters. (IBM)

ASCII Code ESC = n m id p [a1 a2 d1 ... d 11]
 Hexadecimal Value 1B 3D n m id p [a1 a2 d1 ... d 11]
 Decimal Value 27 61 n m id p [a1 a2 d1 ... d 11]

This sequence allows to design and then down-line load special characters not present in the character set in use. Whenever you would like to start the DLL setting procedure, it should be better to copy the character generator in ROM into RAM by sending the ESC = {0} {0} sequence that causes the DLL to be reset. Up to 256 characters can be defined using the DLL function.

The parameters in the command line have the following meaning:

n and m Indicate how many characters you should down-line load. n and m are calculated as follows:
 {number of characters x 13}+2 = {total}

If {total} is less than {256}

{n} = {t}

{m} = {0}

If {total} is greater than {256}

{n} = {remainder of {t} divided by 256}

{m} = {integer result of {t} divided by 256}

id Indicates the printer model. In this case it is fixed to {20}.

Each DLL character is described using the following parameters:

p This is the decimal code of the first character of the character set in use that should be replaced by the DLL character.

a1 This is the first attribute byte and it has the following meaning:

Bit 7: {0} indicates that the character is not a true descender.

 {1} indicates that the character is a true descender.

 This bit is ignored if bit 0 or bit 1 is set to 1.

Bit 6 to 2 Ignored

Bit 1, 0 Character description:

 {00} no 12-high expansion. The bit 7 is valid.

 {01} line drawing character. The dots in row 8 are extended

downward to rows 9, 10, 11 and 12. The bit 7 is ignored. It is advisable to use this mode to create characters that should replace 179 to 223 code characters.

- {11} shading characters. The dots in row 1, 2, 3 and 4 are repeated as rows 9, 10, 11 and 12. The Quality printing is ignored. It is advisable to use this mode to create characters that should replace 176 to 178 code characters.

a2 This is the second attribute byte. It specifies the proportional printing information. If you do not wish to define a proportional character, set the bit 6 – 0 to {0}. When you use the proportional printing for a DLL character with bit 6 – 0 set to {0}, the databytes of the character will be printed.

Bit 7:	Ignored
Bit 6, 5, 4	Interpreted as binary number. These bits specify the number of leading bytes that should be ignored. This number is the offset. Up to 7 bytes can be ignored. The counts begins with byte 1.
Bit 3 to 0	Interpreted as binary number. These bits specify the number of dots-columns that should be printed. Each character must be followed by a blank byte that is not included in the count of the character width. Character widths greater than 11 are treated as 11.

Bit-Image

ESC *

Sets dot graphics printing. (EPSON, IBMXL24, IBMXL24 AGM)

ASCII Code	ESC * m n1 n2 p1 p2 ... px
Hexadecimal Value	X'1B' X'2A' m n1 n2 p1 p2 ... px
Decimal Value	27 42 m n1 n2 p1 p2 ... px
Range	m = 0,1,2,3,4,5,6,7; 0 < n1 < 255; 0 < n2 < 31

This command prints dot-graphics in 8-dot columns, depending on the following parameters: number of dot columns = (n1 + (n2 x 256))

Selects 8-dot graphic or 24-dot graphic modes according to the table below.

The m parameter determinates the horizontal density as well as the number of wires to be fired.

For 8-dot images, the total number of data bytes (p) to be sent is determined by the following formula: n1+ n2 x 256.

m	DPI	# DOTS	DENSITY NAME	Other ESC
0	60	8	Normal density	ESC K
1	120	8	Dual density	ESC L
2	120 (virtual)	8	Double speed, Dual density	ESC Y
3	240 (virtual)	8	Quadruple-density	ESC Z
4	80	8	CTR Graphic I	
6	90	8	CTR Graphic II	

For 24-dot images, the total number of data bytes (px) to be sent is determined by the following formula:
 $3.x.(n1+n2 \times 256)$.

m	DPI	# DOTS	DENSITY NAME
32	60	24	Normal density
33	120	24	Double density
38	90	24	CRT Graphic III
39	180	24	Triple-density
40	360 (virtual)	24	Hex-density

ESC ?

Reassigns dot graphics mode. (EPSON)

ASCII Code	ESC ? nm
Hexadecimal Value	X'1B' X'3F' nm
Decimal Value	27 63 nm

Reassigns one of the dot graphics mode (described in the command ESC *) to one of the following commands: ESC K, ESC L, ESC Y and ESC Z. The nparameter specifies a character (K, L, Y, or Z) which is reassigned to specific mode m= 0,1,2,3.

m	n	m	n
0	(K): ESC K graphic command	2	(Y): ESC Y graphic command
1	(L): ESC L graphic command	3	(Z): ESC Z graphic command

ESC K

Normal density dot graphics printing (60 dpi) (IBM/EPSON).

ASCII Code	ESC K n1 n2 p1 p2 ... px
Hexadecimal Value	X'1B' X'4B' n1 n2 p1 p2 ... px
Decimal Value	27 75 n1 n2 p1 p2 ... px
Range	0 = n1 = 255 0 = n2 = 31 0 = p= 255

Terminator code. This command prints dot graphics at 60 horizontal dots per inch (dpi) by 180 vertical dpi. The parameter values are calculated as follows:

- n1 Remainder of the number of columns divided by 256.
- n2 Integer result of the previous division.
- p1 Sum of the values corresponding to the dots that should be printed in the first column of the graphics pattern.
- p2 Sum of the values corresponding to the dots that should be printed in the second column of the graphics pattern.
- px Sum of the values corresponding to the dots that should be printed in the last column of the graphics pattern.

ESC L

Double density dot graphics printing (120 dpi) (IBM/EPSON).

ASCII Code	ESC L n1 n2 p1 p2 ... px
Hexadecimal Value	X'1B' X'4C' n1 n2 p1 p2 ... px

Decimal Value	27 76 n1 n2 p1 p2 ... px
Range	0 = n1 = 255
	0 = n2 = 31
	0 = p = 255

Terminator code. This command prints dot graphics at 120 horizontal dpi by 180 vertical dpi.

The parameter values should be calculated as follows:

n1	Remainder of the number of columns divided by 256.
n2	Integer result of the previous division.
p1	Sum of the values corresponding to the dots that should be printed in the first column of the graphics pattern.
p2	Sum of the values corresponding to the dots that should be printed in the second column of the graphics pattern.
px	Sum of the values corresponding to the dots that should be printed in the last column of the graphics pattern.

ESC Y

Double density dot graphics printing at double-speed graphics (120 virtual dpi) (IBM/EPSON).

ASCII Code	ESC Y n1 n2 p1 p2 ... px
Hexadecimal Value	X'1B' X'59' n1 n2 p1 p2 ... px
Decimal Value	27 89 n1 n2 p1 p2 ... px
Range	0 = n1 = 255
	0 = n2 = 31
	0 = p = 255

Terminator code. This command prints dot graphics at 120 horizontal dpi by 180 vertical dpi.

The parameter values should be calculated as follows:

n1	Remainder of the number of columns divided by 256.
n2	Integer result of the previous division.
p1	Sum of the values corresponding to the dots that should be printed in the first column of the graphics pattern.
p2	Sum of the values corresponding to the dots that should be printed in the second column of the graphics pattern.
px	Sum of the values corresponding to the dots that should be printed in the last column of the graphics pattern.

ESC Z

Quadruple density dot graphics printing (240 virtual dpi) (IBM/EPSON).

ASCII Code	ESC Z n1 n2 p1 p2 ... px
Hexadecimal Value	X'1B' X'5A' n1 n2 p1 p2 ... px
Decimal Value	27 90 n1 n2 p1 p2 ... px
Range	0 = n1 = 255
	0 = n2 = 31
	0 = p = 255

Terminator code. This command prints dot graphics at 240 horizontal dot per inch by 180 vertical dpi.

The parameter values should be calculated as follows:

n1	Remainder of the number of columns divided by 256.
----	--

- n2 Integer result of the previous division.
- p1 Sum of the values corresponding to the dots that should be printed in the first column of the graphics pattern.
- p2 Sum of the values corresponding to the dots that should be printed in the second column of the graphics pattern.

ESC [g

Selects 8 or 24 needle dot graphics mode. (IBM)

ASCII Code	ESC [g I h m n 1 ... nk
Hexadecimal Value	X'1B' X'5B' X'67' I h m n 1 ... nk
Decimal Value	27 91 103 I h m n 1 ... nk

This command selects dot graphics in 8 or 24 needle configuration. $h*256+I$ represents the number of data + I. The m parameter represents the dot graphics modes as shown in the following table:

m	DENSITY	NEEDLE	FUNCTION
0	60	8	Same as ESC K (8 needles)
1	120	8	Same as ESC L (8 needles)
2	120	8	Same as ESC Y (8 needles)
3	240	8	Same as ESC Z (8 needles)
8	60	24	Same as ESC * (32)
9	120	24	Same as ESC * (33)
11	240	24	Same as ESC * (39)
12	360	24	Same as ESC * (40)

The n1, n2 up to nk parameters are dot graphics data. If you select the 8 needle dot graphics mode, one byte of data is needed for each column so that the formula $h*256+I = \text{number of columns} + I$ is valid. If you select the 24 needle dot graphics mode, three bytes of data is needed for each column so that the formula $h*256+I = \text{number of columns} * 3 - I$ is valid.

Data Input Control

CAN

Cancels line. (EPSON)

ASCII Code	CAN
Hexadecimal Value	X'18'
Decimal Value	24

This code clears all printable characters and bit-image graphics on the current line. This code moves the print position to the left-margin position.

CAN

Cancels data. (IBM)

ASCII Code	CAN
Hexadecimal Value	X'18'
Decimal Value	24

This code clears all data stored in the preceding print buffer but does not change the current print position.

DC1

Selects printer. (IBM)

ASCII Code	DC1
Hexadecimal Value	X'11'
Decimal Value	17

This command causes the printer to be enabled after it has been disabled by the ESC Q command.

DC1

Selects printer. (EPSON)

ASCII Code	DC1
Hexadecimal Value	X'11'
Decimal Value	17

This command causes the printer to be enabled after it has been disabled by the DC3 command.

DC3

Deselects printer. (EPSON)

ASCII Code	DC3
Hexadecimal Value	X'13'
Decimal Value	19

This code deselects the printer. The printer remains deselected until it receives a DC1 command or power is turned off then on again. The printer ignores the ESC @ command (initialize printer) when it is deselected.

DEL

Deletes the last character. (EPSON)

ASCII Code	DEL
Hexadecimal Value	X'7F'
Decimal Value	127

This command causes the printer to delete the last printable character sent to the printer. 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).

ESC

Cancels MSB control. (EPSON)

ASCII Code	ESC #
Hexadecimal Value	X'1B' X'23'
Decimal Value	27 35

This command cancels any controls on the Most Significant Bit (MSB) (bit number 7) set by ESC = or ESC > commands. The printer then accepts all MSB data as is.

ESC =**Sets MSB to 0. (EPSON)**

ASCII Code	ESC =
Hexadecimal Value	X'1B' X'3D'
Decimal Value	27 61

This command sets the MSB (bit number 7) of all incoming data to 0. All data is affected, including graphics data.

ESC >**Sets MSB to 1. (EPSON)**

ASCII Code	ESC >
Hexadecimal Value	X'1B' X'3E'
Decimal Value	27 62

This command sets the MSB (bit number 7) of all incoming data to 1. All data is affected, including graphics data.

ESC Q**Deselects Printer. (IBM)**

ASCII Code	ESC Q n
Hexadecimal Value	X'1B' X'51' n
Decimal Value	27 81 n

This sequence tells the printer not to accept data from the host. The host must reset the printer or select the printer by using DC1 (Select Printer) to accept data. To deselect the printer, use ESC Q35.

Miscellaneous**BEL****Buzzer (IBM/EPSON).**

ASCII Code	BEL
Hexadecimal Value	X'07'
Decimal Value	7

This code sounds the printer buzzer.

BS**Print and space back one position (IBM/EPSON).**

ASCII Code	BS
Hexadecimal Value	X'08'
Decimal Value	8

This code causes printing to be continued from one column to the left of the current carriage position. The printer ignores this command if it would move the print position to the left of the left margin.

ESC @**Initializes the printer. (EPSON)**

ASCII Code	ESC @
Hexadecimal Value	X'1B' X'40'
Decimal Value	27 64

This sequence causes the printer:

- To go back to the current printer setup settings
- To cancel any selected print attributes
- To reset the column counter
- To set the horizontal tabulations every 8 columns
- To clear all vertical tabulations

Only the selection of the Draft or Quality printing DLL, and the selected character generator are maintained.

ESC [K**Sets initial conditions. (IBM 2391 + only)**

ASCII Code
ESC [K n1 n2 init id

Hexadecimal Value X'1B' X'5B' X'4B' n1 n2 init id

Decimal Value
27 91 75 n1 n2 init id

This command causes the printer to reset to its initial status:

n1, n2 The n1 and n2 parameters specify the number of bytes in the escape sequence normally, n1 = 2 and n2 = always 0.

init The init parameter specifies which condition the printer should be initialized: normally init = 0,1,4,5,254,255.

init	Description
0	Initializes the printer to user-default settings. The download font remains unchanged. If parameters are specified, they overwrite the default settings. If the emulation mode is changed, the download font is initialized. This command only copies data from the selected macro, adds parameter changes, if any, and stores it in working RAM. The data stored in the macro's nonvolatile RAM is not affected.
1	Initializes the printer to user-default settings. The download font is initialized. If parameters are specified, they overwrite the default settings. This command only copies data from the selected macro, adds parameter changes, if any, and stores it in working RAM. The data stored in the macro's nonvolatile RAM is not affected.
4	Initializes the printer to factory settings. The download font remains unchanged. If parameters are specified, they overwrite the default settings. If the emulation mode is changed, the download font is initialized. This command only copies the default settings from ROM, adds parameter changes, if any, and stores it in working RAM. The data stored in the macro's nonvolatile RAM is not affected.

- 5 Initializes the printer to factory settings. The download font is initialized. If parameters are specified, they overwrite the default settings. This command only copies the default settings from ROM, adds parameter changes, if any, and stores it in working RAM. The data stored in the macro's nonvolatile RAM is not affected.
- 254 Initializes the printer to user-default settings. The download font is initialized. If parameters are specified, they overwrite the default settings. This command changes the data stored in the selected macro. It copies data from the selected macro, adds parameter changes, if any, and stores it in working RAM and in the selected macro. It also changes the default macro to the value of parm 3.
- 255 Initializes the printer to default settings. The download font is initialized. If parameters are specified, they overwrite the default settings. This command changes the data stored in the macro's nonvolatile RAM. It copies default settings from ROM, adds parameter changes, if any, and stores it in working RAM and all macros. It also sets the default macro to disable.
- id The id parameter specifies the printer for which the following parameter bytes are intended. If the ID does not address your printer, the mode bytes that follow are ignored. The ID values are Hex = X'B6', Dec = 182.

parm1 Specifies the following functions:

	Bit	Not set	Set
7	Discard byte	Process this byte	Ignore this byte
6	Reserved		
5	Alarm	Alarm enabled	Alarm disabled
4	Automatic CR	No CR on vertical movement	CR on vertical movement
3	Automatic LF	No LF after CR	LF after CR
2	Page length	11 inches	12 inches
1	Slashed zero	Zero without slash	Zero with slash
0	Character set	CS1	CS2

parm2 Specifies the following functions:

	Bit	Not set	Set
7	Discard byte	Process this byte	Ignore this byte
6	Pass over from CP437-CP850	CP437	CP850
5	Reserved		
4	Reserved		
3	Reserved		
2	Reserved		
1	Line length	13.6 inch	8 inch
0	Reserved		

Only the selection of the Draft or Quality printing DLL, and the selected character generator are maintained.

ESC j

Stops printing. (IBM)

ASCII Code	ESC j n
Hexadecimal Value	X'1B' X'6A' n
Decimal Value	27 106 n

This command stops the printer. The printer goes offline and a BUSY signal is sent to the computer. To

place the printer online, press the ON LINE key.

ESC U

Sets printing direction (IBM/Epson).

ASCII Code	ESC U n
Hexadecimal Value	X'1B' X'55' n
Decimal Value	27 85 n

Selects bidirectional or unidirectional printing according to the parameters below:

n	Direction
0	Bidirectional printing
1	Unidirectional (left to right) printing

Unidirectional printing provides better alignment of vertical lines while bidirectional printing is faster.

ESC [u n

Bar Codes selection. (IBM -Epson)

ASCII Code	ESC [u n
Hexadecimal Value	X'1B' X'5B' X'75' n
Decimal Value	27 91 117 n

This command is recognized only if the Bar Code menu option is set to "Alternate" mode.

n	
0	Exit Bar Code mode
1	Enter Bar Code mode. Subsequent data are barcode data strings as set by ESC [v n

ESC [v n m

Sets Barcode parameters. (IBM -Epson)

ASCII Code	ESC [vnm
Hexadecimal Value	X'1B' X'5B' X'76' nm
Decimal Value	27 91 118 nm

Set barcode parameters according to the table below. Parameter values that are not supported result in the command being ignored.

n	Parameter Description	m values	m default
0	Barcode style	see below table	4
1	Barcode height	1-120 (1/12" increments)	12
2	Human readable line	0=disable 1=enable	1
3	Narrow bar width	2-225	3
4	Wide bar width	2-225	7
5	Narrow space width	2-225	3
6	Wide space width	2-225	7
7	Intercharacter space width	2-225	3
8	Rotation and HRC font	0.1=no rotation and current font for HRC 2=90 3=180 4=270 and special HRC font	0

9	Horizontal print density	1=120 2=144 3=180 dpi	1
10	Check digit	0=disable 1=enable	0
11	HRC font for rotate barcode	3=OCRA 4=OCRB	3
12	Barcode height	0-240 (1/24" increments)	24

Supported Bar Code Styles

m	Style
0	Interleaved 2 of 5
1	Bidirectional 2 of 5
2	Matrix 2 of 5
3	Industrial 2 of 5

Supported Bar Code Styles

m	Style
4	Code 3 of 9 (default)
5	EAN-8
6	EAN-13
7	Code 11
9	Codabar (default start/stop = a/t)
10	Codabar (default start/stop = b/n)
11	Codabar (default start/stop = c/*)
12	Codabar (default start/stop = d/e)
13	UPC-A
14	UPS-E
15	Code 93
16	Code 128 (subset A, B, and C)
17	Code 128 (subset A, B, and C)
18	Code 128 (subset A, B, and C)
19	MSI
20	UPC 2 Supplemental
21	UPC 5 Supplemental
22	EAN 2 Supplemental
23	EAN 5 Supplemental
50	Postnet

Chapter 2. Native Emulation Commands

The printer in the Native Mode supports the following printer commands.

Format Control

DC4 DC4 ESC 1

Sets vertical spacing n/180 inch.

ASCII Code	DC4 DC4 ESC 1 n
Hexadecimal Value	X'14' X'14' X'1B' X'31' n
Decimal Value	20 20 27 49 n
Range	0 = n = 255

This command sets vertical spacing to n/180 inch for subsequent line feeds.

DC4 DC4 ESC 3 1

Sets vertical spacing 12 lines/30 mm.

ASCII Code	DC4 DC4 ESC 3 1
Hexadecimal Value	X'14' X'14' X'1B' X'33' X'31'
Decimal Value	20 20 27 51 49

This command sets vertical spacing to 12 lines per 30 mm.

DC4 DC4 ESC 3 3

Sets vertical spacing to 3 lines/30 mm.

ASCII Code	DC4 DC4 ESC 3 3
Hexadecimal Value	X'14' X'14' X'1B' X'33' X'33'
Decimal Value	20 20 27 51 51

This command sets vertical spacing to 3 lines per 30 mm.

DC4 DC4 ESC 3 4

Sets vertical spacing 4 lines/30 mm.

ASCII Code	DC4 DC4 ESC 3 4
Hexadecimal Value	X'14' X'14' X'1B' X'33' X'34'
Decimal Value	20 20 27 51 52

This command sets vertical spacing to 4 lines per 30 mm.

DC4 DC4 ESC 3 6**Sets vertical spacing 6 lines/30 mm.**

ASCII Code	DC4 DC4 ESC 3 6
Hexadecimal Value	X'14' X'14' X'1B' X'33' X'36'
Decimal Value	20 20 27 51 54

This command sets vertical spacing to 6 lines per 30 mm.

DC4 DC4 ESC 3 8**Sets vertical spacing 8 lines/30 mm.**

ASCII Code	DC4 DC4 ESC 3 8
Hexadecimal Value	X'14' X'14' X'1B' X'33' X'38'
Decimal Value	20 20 27 51 56

This command sets vertical spacing to 8 lines per 30 mm.

DC4 DC4 ESC A**Sets the horizontal spacing to 15, 17.1, 20,24 CPI.**

ASCII Code	DC4 DC4 ESC A n
Hexadecimal Value	X'14' X'14' X'1B' X'41' n
Decimal Value	20 20 27 65 n

This is terminator code and causes the current contents of the print buffer to be printed. The subsequent characters are printed at the horizontal spacing specified by the n parameter.

n	Spacing
4	15 cpi
5	17 cpi
6	20 cpi
7	24 cpi

Native Character Set**DC4 DC4 ESC g****Selects LQ fonts.**

ASCII Code	DC4 DC4 ESC g n
Hexadecimal Value	X'14' X'14' X'1B' X'67' n
Decimal Value	20 20 27 103 n
Range	0 = n = 255

If down-line loading is selected, the command is stored and activated as soon as the down-line loading is canceled.

Boldface is available if the ESC p1 (proportional) is sent.

n	Types	n	Types	n	Types	n	Types
1	Gothic	2	Courier	3	Prestige	4	Script
5	OCR-B	6	OCR-A	7	Presentor	11	Boldface Prop.
182	DLL						

The OCR-A and OCR-B print styles are selected by the DC4 DC4 ESC S command.

DC4 DC4 ESC S

Selects character set ISO Character Sets or Code Pages.

ASCII Code	DC4 DC4 ESC S n
Hexadecimal Value	X'14' X'14' X'1B' X'53' n
Decimal Value	20 20 27 83 n

n	Types	n	Types
1	ISO 8859/1 Latin 1	137	CP 852 Eastern Europe
2	ISO 8859/2 Latin 2	138	CP 876 OCR-A
3	ISO 8859/3 Latin 3	139	CP 877 OCR-B
4	ISO 8859/4 Latin 4	140	CP 855 Cyrillic
5	ISO 8859/5 Latin/Cyrillic	141	CP 866 Russian
6	ISO 8859/6 Latin/Arabic	142	GOST Cyrillic
7	ISO 8859/7 Latin/Greek	145	CP 437G Greek
8	ISO 8859/8 Latin/Hebrew	146	CP 853 Turkish
9	ISO 8859/9 Latin 5	147	CP 857 Turkish
15	ISO 8859/15 Latin 9	148	CP 867 Turkish
128	CP 437 USA	149	CP 858 Euro PC Multilingual
129	CP 850 Multilingual	199	96 Greek
130	CP 860 Portugal	200	CP 1250
131	CP 863 Canada/France	201	MAZOWIA
132	CP 865 Denmark/Norway	202	CP 1251
133	CP 851 Greek	203	CP 1252
134	CP 862 Hebrew		
135	CP 864 Arab		
136	TASS Cyrillic		

DC4 DC4 ESC p

Selects printing style type.

ASCII Code	DC4 DC4 ESC p n
Hexadecimal Value	X'14' X'14' X'1B' X'70' n
Decimal Value	20 20 27 112 n

n	Setting
0	HS Draft
1	Best Draft
2	Normal Draft
3	NLQ
4	LQ
5	DLL

Bar Codes

DC4 DC4 ESC !

Bar Code Selection.

ASCII Code	DC4 DC4 ESC ! htfFroqbsBSiEM
Hexadecimal Value	X'14' X'14' X'1B' X'21' ! htfFroqbsBSiEM
Decimal Value	20 20 27 33 ! htfFroqbsBSiEM

This command is recognized only if the menu option “BAR CODE” is set to “NATIVE” mode.

h = Bar Code Height at n/6”, 1 < h < 30

t = Standard Bar Code to use

t	Name	
1	8-digits European Article Numbering	EAN-8
2	13-digits European Article Numbering	EAN-13
3	Universal Product Code Type A	UPC-A
4	Universal Product Code Type E	UPC-E
5	UPC/EAN 2 Digit Supplement	UPC-EAN 2
6	UPC/EAN 5 Digit Supplement	UPC-EAN 5
7, 8, 9	8-digits European Article Numbering	EAN-8
10	General Purpose Bar Code	Code-GP
11	Code 2 of 5 3-BAR (Data Logic)	C25-3BAR
12	Binary Coded Decimal	CODE BCD
13	MSI-Plessey	MSI
14	AIM-USD-8 / Code-11	Code 11
15	AIM-USD-7 / Code-93	Code 93
16	Code 2 of 5 Bidirectional	C25-BID
17	Code 2 of 5 Interleaved	C25-INT
18	Code 2 of 5 Industrial	C25-IND
19	Code 2 of 5 Matrix	C25-MTX
20	Code 3 of 9	Code-39
21	8-digits European Article Numbering	EAN-8
22	Codabar (all types)	CODABAR
23	Code 128	CODE-128
24	USPS-PostNet	POSTNET

f = Readable character printing

f = 1 printing enabled

f = 0 printing disabled

F = Font selection for the printable characters

F Selection

- 0 Selected font by **r** value
- 1 Default font for text
- 1 Special font for OCR-A o OCR-B bar codes according to the **t** value
- 3 Special font for OCR-A bar codes
- 4 Special font for OCR-B bar codes

r = Bar code rotation

r Selection

- 0 No rotation
- 1 Rotation at 0°

- 2 Rotation at 90°
- 3 Rotation at 180°
- 4 Rotation at 270°

o = A check digit is inserted as the last character of the received string according to the bar code

q = The horizontal graphic density of the bar code

- q Selection**
- 0 1/120"
 - 1 1/180"

b = Narrow bar width in n/180", 3 < b <18

s = Narrow space width in n/180", 3 < s <18

B = Wide bar width in n/180", 6 < B <72

S = Wide space width in n/180", 6 < S <72

i = Spacing between characters in n/180", 3 < i <72

EM = Check sequence terminator

Bar Code Description

EAN-8	DC4 DC4 ESC ! n1pEM
	The EAN-8 bar code data field must only contain numeric data and must be eight bytes long including the check digit. The EAN-8 character repertoire provides 0 to 9 ASCII numeric figures. n indicates the bar code height in units of 1/6 inch and must be in the range 1 to 12. pmust be NUL (hex. X'00') if no Human Readable Characters are to be printed, and 1 (hex. X'01') if they are to be printed. The range of values for the nand pparameters can be increased of 32 dec.
EAN-13	DC4 DC4 ESC ! n2pEM
	The EAN-13 bar code data field must only contain numeric data and must be 13 bytes long including the check digit. The EAN-13 character repertoire provides 0 to 9 ASCII numeric figures. n indicates the bar code height in units of 1/6 inch and must be in the range 1 to 12. If you want to print the Human Readable Characters, pmust have the value 1 (hex. X'01'); otherwise this value must be NUL (hex. X'00'). The range of values for the nand pparameters can be increased of 32 dec.
UPC-A	DC4 DC4 ESC ! n3pEM
	The UPC-A bar code data field allows 10 numeric characters plus one system number digit and one check digit at the leftmost and rightmost positions, respectively. The UPC-A character repertoire provides 0 to 9 ASCII numeric figures. nindicates the bar code height in units of 1/6 inch and must be in the range 1 to 12. pmust be NUL (hex. X'00') if no Human Readable Characters are to be printed, and 1 (hex. X'01') if they are to be printed. The range of values for the nand pparameters can be increased of 32 dec.
UPC-E	DC4 DC4 ESC ! n4pEM
	If 11-digit strings are received and the ocheck digit field is missing or takes values 0 or 2, question marks are printed in place of the HRC string, when possible. If the ofield takes a value of 1, the 12th digit is inserted by the printer as a result of the internally available algorithm applied to the received string.

If 10-digit strings are received and the ocheck-digit is missing or takes NULL value, question marks are printed in place of HRC string, if possible. If the ofield takes a value of 1, a default 0 System-Digit is automatically inserted by the printer and the 12th digit is also inserted as result of the internally available algorithm applied to the final string.

If the final UPC-A string cannot be compressed to an 8-digits string, or the received System-Digit is different than 0 or 1, question marks are printed in place of the HRC string, if possible.

The LEFT and RIGHT delimiters, System-Digit, and the Check-Digit are printed as descending bars to make a field to host a 6-digits HRC string. The System-Digit HRC to the left of the LEFT delimiter (at about the middle of the symbol) when the ffield is missing or set to 1. In this case, the Check-Digit shows in HRC to the right of the RIGHT delimiter (at about the middle of the symbol), when ofield takes values 2 or 3. Otherwise it never shows on the HRC string.

UPC-EAN 2 DC4 DC4 ESC ! n5pEM

The ADD ON-2 bar code data fields contain numeric data only. Otherwise question marks are printed in place of the HRC string, if possible.

If 3-digit strings are received within a DC4 DC4 ESC (... EM control sequence and the o check-digit option field is missing or takes NULL value, the symbol encodes the first 2 digits and the 3rd received digit is used as the check digit, even though this may affect its readability. If the o field takes a value of 1, the 3rd digit is matched as opposed to the internally generated check-digit. Question marks are printed in place of HRC string when mismatched, if possible.

If 2-digit strings are received and ocheck digit field is missing or takes NULL value, question marks are printed in place of the HRC string, when possible. If the ofield takes a value of 1, the check digit are computed applying the internally available algorithm to the received string in order to properly encode the symbol.

If the ffield is missing or takes a value of 1, the 2-digit HRC string is printed above the Bar/Spaces symbol and its height is part of the overall symbol's height. The check-digit never shows on the HRC string. If the ffield takes a value of 0, the symbol's encoding prints at full height.

UPC-EAN 5 DC4 DC4 ESC ! n6pEM

The ADD ON-5 bar code data field contains numeric data only. Otherwise question marks are printed in place of the HRC string, if possible.

If 6-digit strings are received within a DC4 DC4 ESC (... EM control sequence and ocheck-digit option field is missing or takes NULL value, the symbol encodes the first 5 digits and the 6th received digit is used as a check digit, even though this may affect its readability. If the ocheck digit option takes a value of 1, the 6th digit is matched as opposed to the internally generated check digit. Question marks are printed in place of the HRC string when mismatching, if possible.

If 5-digit strings are received and the ocheck digit field is missing or takes a NULL value, question marks are printed in place of the HRC string, if possible. If the ofield takes a value of 1, the check digit is computed applying the internally available algorithm to the received string in order to properly encode the symbol. If the ffield is missing or takes a value of 1, the 5-digit HRC string is printed above the Bar/Spaces symbol and its height is part of the overall symbol's height; the check-digit never shows on the HRC string. If the ffield takes a value of 0, the symbol's encoding prints at full height.

CODE GP DC4 DC4 ESC ! n10pEM

The CODE-GP bar code allows bar codes to be constructed from the two basic elements (BAR and SPACE) by sending 0,1 digits: digit 0 produces a BAR and digit 1 produces a SPACE.

These two elements may be combined in any sequence, giving the possibility of producing bars and spaces of any width that is a multiple of the basic element width. The default bar/spaces width is 1/60" (q= 0,1) but these values may be set by the user according to its specific needs. Data fields do not have a defined format length and contain 0,1 data only. Otherwise question marks are printed in place of HRC string, if possible.

No Human Readable Interpretation is possible No TEXT STRING below or above the bar/space symbol can be printed. The fand ofields are ignored.

C25-3BAR DC4 DC4 ESC ! n11pEM

The C25-3BAR bar code data fields do not have a defined format length and contain numeric data only. Otherwise, question marks are printed in place of the HRC string, if possible. If the ocheck digit option field takes a value of 1, an internally generated check digit complying with general 2/5 family algorithm is added to the encoded string. However, it will not show on the required HRC string.

Code BCD DC4 DC4 ESC ! n12pEM

The CODE-BCD bar code data fields do not have a defined format length and contain numeric data only. Otherwise question marks will be printed in place of the HRC string, if possible. No internal check digit algorithm is available for this standard. The ofield is meaningless.

MSI Plessey DC4 DC4 ESC ! n13pEM

The MSI bar code data fields do not have a defined format length and must contain numeric data only. Otherwise question marks are printed in place of the HRC string, if possible. To release the host from calculating the MSI check digits, internal algorithms are provided that are accessible by the host application program, giving the proper supported value to the ocheck-digit option field, according to the following options:

0	Print the bar code symbol with no printer-generated check digits		
1	Print the bar code symbol with IBM Modulus-10 check digit -generated by the printer and put at the end of the numeric string. This is the 2nd check digit. The 1st check digit is IBM Modulus-10 also.	2	Print the bar code symbol with both check digits generated by the printer and put at the end of the data. The 2nd check digit is IBM Modulus-10. The 1st check digit is also IBM Modulus-10.
3	Print the bar code symbol with both check digits generated by the printer and put it at the end of the data. The 2nd check digit is IBM Modulus-10. The 1st check digit is NCR Modulus-11. If the modulus is 10, it is an error and question marks are printed in place of the HRC string, if possible.	4	Print the bar code symbol with both check digits generated by the printer and put it at the end of the data. The 2nd check digit is IBM Modulus-10. The 1st check digit is IBM Modulus-11. If the modulus is 10, it is an error and question marks are printed in place of the HRC string, if possible.
5	Print the bar code symbol with both check digits generated by the printer and put it at the end of the data. The 2nd check digit is IBM Modulus-10. The 1st check digit is the complement to 11 of NCR Modulus-11 algorithm applied to the received string, If the modulus is 0 or 1, the check digit is 0.	6	Print the bar code symbol with both check digits generated by the printer and put it at the end of the data. The 2nd check digit is IBM Modulus-10. The 1st check digit is the complement to 11 of IBM Modulus-11 algorithm applied to the received string. If the modulus is 0 or 1, the check digit is 0.

7	Print the bar code symbol with both check digits generated by the printer and put at the end of the data. The 2nd check digit is IBM Modulus-10. The 1st check digit is the complement to 11 of NCR Modulus-11 algorithm applied to the received string. If the modulus is 0 or 1, it is an error and question marks are printed in place of the HRC string, if possible.	8	Print the bar code symbol with both check digits generated by the printer and put at the end of the data. The 2nd check digit is IBM Modulus-10. The 1st check digit is the complement to 11 of IBM Modulus-11 algorithm applied to the received string. If the modulus is 0 or 1, it is an error and question marks are printed in place of the HRC string, if possible.
The printer-generated second check digit does not show on the required HRC string.			

Code 11**DC4 DC4 ESC ! n14pEM**

The CODE-11 bar code fields do not have a defined format length and contain data belonging to the character set listed below:

0123456789

Otherwise question marks are printed in place of the HRC string, if possible.

This barcode type defines a variable WIDE/NARROW ratio. The bar code is printed at 1/180" horizontal and vertical graphical printing resolution to ensure high readability rate. Each digit encoding is separated from the next by a 1/90"—1/60" wide default Intercharacter Gap.

CODE-11 has unique a START/STOP character. The printer generates the couple related to each symbol. It is visually interpreted by an OPEN TRIANGLE and will always appear on the HRC string because its size is usually varied to signify the number of check digits being used in the particular symbol:

- SMALL open triangle means ONE check-digit
- LARGE open triangle means TWO check-digit

The ffield is meaningless and always defaults to the HRC string print.

Code 93**DC4 DC4 ESC ! n15pEM**

The CODE-93 bar code fields do not have a defined format length and contain data belonging to the standard ASCII character set, including control codes.

Since the GS and EM control codes are used, the DC4 DC4 ESC (... EM "Print bar-code" control sequence is part of the supported character set. The host application must SET THE HIGHER-ORDER BIT of the above control codes to allow the printer to distinguish between encodable data and string terminators.

The complete ASCII standard character set is encoded using 47 combinations of 9 bar/space narrow elements arranged into 3 variable width bars with their adjacent variable width spaces. Each of the bars in the supported combinations can be 1, 2, or 3 modules wide. The START/STOP character has a 4-module wide bar. CODE-93 directly implements the basic subset as shown below:

0123456789 A BCDEFGHIJKL MNOP QRS T UVWX Y Z-.SPACES\$/+%

(\$) (%) (/) (+) (as special control characters)

(as unique START/STOP character)

The other STANDARD-ASCII codes not presented above are represented by means of a combination of one control character in the above set followed by a symbol in the alphabetical set. The HRC string is printed BELOW the symbol when ffield is set to 1 without

check digits. Non-printable ASCII characters are represented in the “control code” format (for example, CR is ^M, where “control” is represented as DARK-SQUARE symbol).

2of5**DC4 DC4 ESC ! n16pEM**

Bidirectional The BID-25 bar code data fields do not have a defined format length and contain numeric data only. Otherwise, question marks are printed in place of the HRC string, if possible. If the ocheck digit option field takes a value of 1, an internally generated check digit is added to the encoded string that will not show on the required HRC string.

2of5**DC4 DC4 ESC ! n17pEM**

Interleaved The 2/5-INTERLEAVED bar code does not have a defined format length. However, the total sum of the characters must be even. nindicates the bar code height and must be in the range 1 to 12. p must be NUL (hex. X'00') if no Human Readable Characters are to be printed, and 1 (hex. X'01') if they are to be printed.

2of5**DC4 DC4 ESC ! n18pEM**

Industrial The 2/5 INDUSTRIAL bar code. Data format length is variable and the supported character set only provides ASCII numeric figures 0 to 9. nindicates the bar code height in units of 1/6 inch and must be in the range 1 to 12. pmust be NUL (hex. X'00') if no Human Readable Characters are to be printed, and 1 (hex. X'01') if they are to be printed.

2of5**DC4 DC4 ESC ! n19pEM**

The 2/5 MATRIX bar code. Data format length is variable and the supported character set only provides ASCII numeric figures 0 to 9. nindicates the bar code height in units of 1/6 inch and must be in the range 1 to 12. pmust be NUL (hex. X'00') if no Human Readable Characters are to be printed, and 1 (hex. X'01') if they are to be printed.

Code 39**DC4 DC4 ESC ! n20pEM**

The CODE 39 bar code. Data format length is variable and must always start and end with an asterisk. It can contain the alphanumeric character listed below:

0123456789

ABCDEFGHIJKLM NOP QRS T UVWX Y Z -. SPACE\$/+%*(as start / stop character)

The parameter indicates the bar code height in units of 1/6 inch and must be in the range 1 to 12. The pparameter must be NUL (hex. X'00') if no Human Readable Characters are to be printed, and 1 (hex. X'01') if they are to be printed.

CODABAR**DC4 DC4 ESC ! n22pEM**

The Codabar bar code data fields do not have a defined format length and contain data belonging to the character set listed hereafter:

0123456789-\$:/+

ABCDEN T *abcdent (only as START/STOP characters)

The printer allows any combination of START/STOP characters. If the first and last characters of the received string do not belong to the START/STOP characters subset, question marks are printed in place of the HRC string, if possible

CODE 128**DC4 DC4 ESC ! n23pEM**

The CODE-128 bar code data fields do not have a defined format length and contain data belonging to the standard ASCII character set, including control codes. Since the GS and EM control codes used within the DC4 DC4 ESC (...EM “Print Bar Code” control sequence are part of the supported character set, the host application must SET THE HIGHER-

ORDER BIT of the above control codes to allow the printer to distinguish between encodable data and string terminators.

POSTNET DC4 DC4 ESC ! n24pEM

The POSTNET bar code data fields contain only numeric data and do not have a defined format length. POSTNET bar codes have no printed HRC string. The LOW/TALL bars that encode the symbol comply with the U.S.P.S standard regardless of the p field value.

DC4 DC4 ESC (GS data EM

Prints bar code symbols.

ASCII Code	DC4 DC4 ESC (GS n1 data GS n2 data ... EM
Hexadecimal Value	X'14' X'14' X'1B' X'28' X'1D' n1 data ... 19
Decimal Value	20 20 27 40 29 n1 data ... 25
Range	1 = n = 12
	0 = p = 1

This sequence prints the bar code symbol according to the previous selection. If you want to print more than one bar code symbol of the same type and height, GS n defines the distance from the beginning of the line or between two bar code symbols in multiples of 1/60 or 1/90 of an inch, depending upon the selected barcode density (120 or 180 dpi). At the end of the line EM must close this command.

Miscellaneous

DC4 DC4 ESC @

Re-initializes the printer.

ASCII Code	DC4 DC4 ESC @
Hexadecimal Value	X'14' X'14' X'1B' X'40'
Decimal Value	20 20 27 64

This command resets the printer mode and clears the buffer of printable data.

DC4 DC4 ESC J

Sets amplification factor.

ASCII Code	DC4 DC4 ESC J hv
Hexadecimal Value	X'14' X'14' X'1B' X'4A' hv
Decimal Value	20 20 27 74 hv

This command sets the required amplification factor to be applied to the current font.

h It is the horizontal amplification factor; the value range is 1 to 4. It is applied to the basic symbols.

It is the vertical amplification factor; the value range is 1 to 4.

0 values for either the hand vparameters keep the related current amplification factor unchanged.

The internally available symbol's amplification algorithms support the following character attributes that may be selected by means of the available control sequences within the currently active emulation: double width, double-height, emphasized, double strike, subscript, superscript, italics, proportional, and compressed.

Doublewide and double-high attributes must be lower than 2.

DC4 DC4 ESC N

Selects/loads or parks the fanfold from the Front 2 path.

ASCII Code	DC4 DC4 ESC N n
Hexadecimal Value	X'14' X'14' X'1B' X'4E' n
Decimal Value	20 20 27 78 n
Range	0 = n= 1

n Selection

- 0 Selects and loads the fanfold from the Front2 path. If the paper is present, the printer automatically parks the fanfold that is not requested before loading the new one (after having pressed the PARK key in response to the TEAR IF NECESS/PARK PAPER message).
- 1 Parks the fanfold loaded from the Front2 path to allow the tear off function (after having pressed the PARK key in response to the TEAR IF NECESS/PARK PAPER message).

DC4 DC4 ESC R

String rotation.

ASCII Code	DC4 DC4 ESC R n string EM
Hexadecimal Value	X'14' X'14' X'1B' X'52' n string EM
Decimal Value	20 20 27 82 n string EM

n Selection

- 0 No rotation.
- 1 Rotation at 0°
- 2 Rotation at 90°
- 3 Rotation at 180°
- 4 Rotation at 270°

DC4 DC4 ESC r

Digit rotation.

ASCII Code	DC4 DC4 ESC r
Hexadecimal Value	X'14' X'14' X'1B' X'72'
Decimal Value	20 20 27 144

This command is used to set the required character rotation to be applied to the selected font.

n Selection

- 0 No rotation.
- 1 Rotation at 0°
- 2 Rotation at 90°
- 3 Rotation at 180°
- 4 Rotation at 270°

DC4 DC4 ESC T

Selects/loads or parks the fanfold from the Front1 path.

ASCII Code	DC4 DC4 ESC T n
Hexadecimal Value	X'14' X'14' X'1B' X'54' n
Decimal Value	20 20 27 84 n

Range 0 = n = 1

n Selection

- 0 Selects and loads the fanfold from the Front1 path. If the paper is present (cut sheet/fanfold), the printer automatically parks this fanfold that is not requested before loading the new one (after having pressed the PARK key in response to the TEAR IF NECESS/PARK PAPER message).
- 1 Parks the fanfold loaded from the Front1 path to allow the tear off function (after having pressed the PARK key in response to the TEAR IF NECESS/PARK PAPER message).

DC4 DC4 ESC Y

Selects emulation.

ASCII Code	DC4 DC4 ESC Y n
Hexadecimal Value	X'14' X'14' X'1B' X'59' n
Decimal Value	20 20 27 89 n

Selects the printer emulation type according to the n parameter value:

n Emulation

- 0 Default printer emulation
- 1 EPSON LQ Series
- 2 IBM Proprinter XL24
- 5 IBM 2391+

DC4 DC4 ESC Z

Makes AGA in column.

ASCII Code	DC4 DC4 ESC Z n
Hexadecimal Value	X'14' X'14' X'1B' X'5A' n
Decimal Value	20 20 27 90 n

The n parameter is the column number at 10 cpi where the AGA (Automatic Gap Adjustment) is made.

DC4 DC4 ESC u

Selects the user macros.

ASCII Code	DC4 DC4 ESC u n
Hexadecimal Value	X'14' X'14' X'1B' X'75' n
Decimal Value	20 20 27 117 n
Range	0 = n = 4

n Selection

- 1 Selects User Macro 1
- 2 Selects User Macro 2
- 4 Selects User Macro 3
- 5 Selects User Macro 4

DC4 DC4 ESC D

Sends the operator panel messages to the serial I/F.

ASCII Code	DC4 DC4 ESC D n
Hexadecimal Value	X'14' X'14' X'1B' X'44' n
Decimal Value	20 20 27 68 n

This command enables or disables sending operator panel messages to the serial I/F. The string to send is the following: STX "message (16 ASCII byte-characters)"EXT.

n	Selection
0	enabled
1	disabled

DC4 DC4 ESC v

Selects graphics print speed.

ASCII Code	DC4 DC4 ESC v n
Hexadecimal Value	X'14' X'14' X'1B' X'76' n
Decimal Value	20 20 27 118 n

n	Selection
0	Selects graphics printing at high vertical density (180 dpi) -reduced print speed.
1	Selects graphics printing at low vertical density (90 dpi) -high print speed.

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Chapter 3. ANSI Emulation Commands

The following printer commands are supported by this printer according to the ANSI X3.64 emulation.

Most dimensional parameters in ANSI protocol are expressed in “decipoints”. For example:

1 decipoint	= 1/720 inch
72 decipoints	= 1/10 inch
120 decipoints	= 1/6 inch
720 decipoints	= 1 inch
2880 decipoints	= 4 inches

All parameter values must be expressed as ASCII numeric rather than binary values.

Parameters, within commands with multiple parameters, must be separated by a semicolon “;”.

See “Basic Program Sample” at the end of this chapter and result printed by the printer.

Character Set Control

ESC [p1 x

Selects national character set (Select National Characters -SNC).

ASCII Code	ESC [p1 x
Hexadecimal Value	X'1B' X'5B' p1 X'78'
Decimal Value	27 91 p1 120

This command selects the national character set table according to the p1 parameter value. See the following tables:

Table 1. 7-bit Substitution

p1	NATION	p1	NATION
0	USA	13	Swedish/Finnish A
1	Germany	14	Swedish/Finnish B
2	French A	15	Swedish/Finnish C
3	French B	16	Swedish/Finnish D
4	French Canadian	17	Switzerland
5	Netherlands	18	USA (ISO)
6	Italian	19	Yugoslavia
7	United Kingdom	20	United Kingdom A
8	Spanish	21	Turkey
9	Danish/Norwegian A	22	Greece
10	Danish/Norwegian B	25	Cyrillic
11	Danish/Norwegian C		
12	Danish/Norwegian D		

See the tables in “ANSI National Variations”.

Table 2. 8-bit Substitution

p1	CHARACTER SETS	p1	CHARACTER SETS
437	Code Page 437	8579	Kamenicky
850	Code Page 850	8580	CWI
851	Code Page 851	8581	Roman-8
852	Code Page 852	8582	IN2
853	Code Page 853	8583	Code Page 864E
855	Code Page 855	8584	Reserved
858	Code Page 858 (Euro symbol included)	8585	Bulgarian
860	Code Page 860	8586 to 8590	Reserved
863	Code Page 863	8591	ISO 8859-1 Western Europe
864	Code Page 864	8592	SO 8859-2 Eastern Europe
865	Code Page 865	8593	ISO 8859-3 Southern Europe
866	Code Page 866	8594	ISO 8859-4 Northern Europe
867	Code Page 867	8595	ISO 8859-5 Cyrillic
1250	Code Page 1250	8596	ISO 8859-6 Arabic
5915	ISO 8859-15 (Euro symbol included)	8597	ISO 8859-7 Greek
8570 to 8575	Reserved	8598	ISO 8859-8 Hebrew
8576	Mazowia	8599	ISO 8859-9 Southern Europe 2
8577	Turkish	8600 to 8700	Reserved for other ISO Tables
8578	Greek		

See the tables in “Character Sets”.

Character Pitch and Print Modes

ESC [p1; ... pn m

Select graphics rendition (SGR).

ASCII Code ESC [p1; ... pn m
 Hexadecimal Value X'1B' X'5B' p1 X'3B' ... pn X'6D'
 Decimal Value 27 91 p1 59 ... pn 109

This command selects fonts, pitch, print modes, and character styles according to the parameter settings:

p	DEFINITION	p	DEFINITION
0	Normal Print Mode	21	Double Underline Mode
1	Bold Print Mode	22	Cancel Bold Mode
2	Subscript Mode	23	Reserved
3	Superscript Mode	24	Cancel Underline Mode (Single & Double)
4	Underline Mode	25	Cancel Expanded Mode
5	Expanded Mode	26	Cancel Proportional Mode
6	Proportional		
7	Italic Mode		
8, 9	Reserved		
10	Draft Font		
11	Draft Font		
12	LQ Gothic		
13	Draft Font		
14	LQ Courier		
15	Draft Italic		
16	LQ Gothic Italic		
17	Draft Italic		
18	LQ Courier Italic		
19	Draft		
20	Reserved		

Subscript and Superscript modes are enabled through the System Menu (ANSI OPTIONS-S/SCRIPT YES). Refer to the Administrator's Manual.

ESC [p1; p2 SP B

Graphic size modification (GSM).

ASCII Code	ESC [p1; p2 SP B
Hexadecimal Value	X'1B' X'5B' p1 X'3B' p2 X'20' X'42'
Decimal Value	27 91 p1 59 p2 32 66

This command sets the height and/or width of expanded and oversized characters.

The p1 and p2 parameters are the percentages by which the height and width will be multiplied, respectively. The default values of p1 and p2 are 100%.

The maximum expansion factor is 18700 for oversize mode and 800 for expanded mode, respectively.

ESC [p1 t

Special print mode (Oversize/Expanded/Bar code Mode -SPM).

ASCII Code	ESC [p1 t
Hexadecimal Value	X'1B' X'5B' p1 X'74'
Decimal Value	27 91 p1 116

This sequence selects or deselects oversize expanded or bar code mode according to the p1 parameter value. See the following table:

p1	FUNCTION
0	Cancel special mode
1	Select oversize mode
2	Select expanded mode
3	Select bar code mode

It can select just one special print mode at a time.

SO

Shift out.

ASCII Code	SO
Hexadecimal Value	X'0E'
Decimal Value	14

This code enables Expanded/Oversize mode as determined by the last received ESC [p1 t command.

SI

Shift in.

ASCII Code	SI
Hexadecimal Value	X'0F'
Decimal Value	15

This code disables Expanded/Oversize mode as determined by the last received ESC [p1 t command.

ESC [p1; pn {

Unidirectional printing (UDP).

ASCII Code	ESC [p1; pn {
Hexadecimal Value	X'1B' X'5B' p1 X'3B' pn X'7B'
Decimal Value	27 91 p1 59 pn 123

This command selects the unidirectional or bidirectional printing according to the p parameter values. See the following table:

p	FUNCTION
0	Cancel unidirectional printing
1	Print unidirectional LQ and DP
2	Print unidirectional Dot Graphics

Horizontal Movements

BS

Back space.

ASCII Code	BS
Hexadecimal Value	X'08'
Decimal Value	8

The BS code moves the print head one character to the left at the current cpi.

CR

Carriage return.

ASCII Code	CR
Hexadecimal Value	X'0D'
Decimal Value	13

This code causes the print head to be moved to the left margin on the current line.

SP

Space.

ASCII Code	SP
Hexadecimal Value	X'20'
Decimal Value	32

This code positions one character space to the right of the print position.

ESC [p1 '**Horizontal position absolute (HPA).**

ASCII Code	ESC [p1 '
Hexadecimal Value	X'1B' X'5B' p1 X'60'
Decimal Value	27 91 p1 96

This command causes the print position to be moved to the decipoint location specified by p1. This sequence can be used to print within the left, top, and bottom margins.

ESC [p1 a**Horizontal position relative (HPR).**

ASCII Code	ESC [p1 a
Hexadecimal Value	X'1B' X'5B' p1 X'61'
Decimal Value	27 91 p1 97

This command moves the print position to the right, relative to the current position. The p1 parameter specifies the number of decipoints. This command cannot be used to move beyond the right margin.

ESC [p1; p2 s**Left/right margin set (SLR).**

ASCII Code	ESC [p1; p2 s
Hexadecimal Value	X'1B' X'5B' p1 X'3B' p2 X'73'
Decimal Value	27 91 p1 59 p2 115

This command sets the left and right margin values. The p1 parameter specifies the decipoint value of the left margin. The p2 parameter specifies the decipoint value of the right margin value. The default value for the left margin is 0. The value for the right margin is the maximum width supported by the printer configuration (that is $13.6 \times 720 = 9792$).

ESC [p1 j**Horizontal position backward (HPB).**

ASCII Code	ESC [p1 j
Hexadecimal Value	X'1B' X'5B' p1 X'6A'
Decimal Value	27 91 p1 106

This command causes the current horizontal position to be moved backwards as specified by the p1 parameter (decipoints).

HT**Horizontal tab.**

ASCII Code	HT
Hexadecimal Value	X'09'
Decimal Value	9

This code causes the print head to be moved to the next tab stop.

ESC H or HTS

Horizontal tab setting.

ASCII Code	ESC H or HTS
Hexadecimal Value	X'1B' X'48' (7-bit) or X'88' (8-bit)
Decimal Value	27 72 (7-bit) or 136 (8-bit)

This command causes a horizontal tab stop to be set to the decipoint value of the current print position.

ESC [p1; pn u

Sets horizontal tab stops at specified positions multiple horizontal tab set (HTS).

ASCII Code	ESC [p1; pn u
Hexadecimal Value	X'1B' X'5B' p1 X'3B' pn X'75'
Decimal Value	27 91 p1 59 pn 117

This command sets up to 22 horizontal tab stops at each decipoint position specified by p parameters. When specifying more than one position, enter the parameters in ascending order.

Vertical Movements

LF

Line feed.

ASCII Code	LF
Hexadecimal Value	X'0A'
Decimal Value	10

This code positions the paper one line space as indicated by the current line spacing value.

ESC D or IND

Index.

ASCII Code	ESC D or IND
Hexadecimal Value	X'1B' X'44' (7-bit) or X'84' (8-bit)
Decimal Value	27 68 (7-bit) or 132 (8-bit)

This command causes the paper to be positioned down one line space as indicated by the current line spacing value.

ESC E or NEL

Next line.

ASCII Code	ESC E or NEL
Hexadecimal Value	X'1B' X'45' (7-bit) or X'85' (8-bit)
Decimal Value	27 69 (7-bit) or 133 (8-bit)

This command causes the paper to be positioned down one line space as indicated by the current line spacing value. The column counter is reset to the left margin value.

ESC K or PLD

Partial line down.

ASCII Code	ESC K or PLD
Hexadecimal Value	X'1B' X'4B' (7-bit) or X'8B' (8-bit)
Decimal Value	27 75 (7-bit) or 139 (8-bit)

This command causes the paper to be positioned down one half line space at the current line spacing value. This can create an appearance of subscripting. This sequence is also used after an ESC L (partial line up sequence) to recover the original active vertical position.

ESC L or PLU

Partial line up.

ASCII Code	ESC L or PLU
Hexadecimal Value	X'1B' X'4C' (7-bit) or X'8C' (8-bit)
Decimal Value	27 76 (7-bit) or 140 (8-bit)

This command causes the paper to be positioned up one half line space at the current line spacing value. This can create an appearance of superscripting. This sequence is also used after an ESC K (partial line down sequence) to recover the original active vertical position.

ESC M or RI

Reverse index.

ASCII Code	ESC M or RI
Hexadecimal Value	X'1B' X'4D' (7-bit) or X'8D' (8-bit)
Decimal Value	27 77 (7-bit) or 141 (8-bit)

This command causes the paper to be positioned up one line space at the current line spacing value.

ESC [p1 d

Vertical position absolute (VPA).

ASCII Code	ESC [p1 d
Hexadecimal Value	X'1B' X'5B' p1 X'64'
Decimal Value	27 91 p1 100

This command causes the current vertical position to be set to the decipoint value specified by the p1 parameter relative to the top most line of the current form length. This sequence can be used to print within the top and the bottom margins.

ESC [p1 e

Vertical position relative (VPR).

ASCII Code	ESC [p1 e
Hexadecimal Value	X'1B' X'5B' p1 X'65'
Decimal Value	27 91 p1 101

This command causes the current vertical position to be advanced to the position specified by the p1 parameter (in decipoints) relative to the current print line position.

ESC [p1; p2 f**Horizontal and vertical position absolute (HVP).**

ASCII Code	ESC [p1; p2 f
Hexadecimal Value	X'1B' X'5B' p1 X'3B' p2 X'66'
Decimal Value	27 91 p1 59 p2 102

This command causes the current print position to be moved to the vertical (p1) and horizontal (p2) decipoint locations specified relative to the top left corner of the page.

This sequence can be used to print within the right, left, top and bottom margins.

ESC [p1 k**Vertical position backward (VPB).**

ASCII Code	ESC [p1 k
Hexadecimal Value	X'1B' X'5B' p1 X'6B'
Decimal Value	27 91 p1 107

This command causes the current vertical position to be moved backwards as specified by the p1 parameter (decipoints) relative to the current print line position.

ESC [p1; pn g**Tab clear (TBC).**

ASCII Code	ESC [p1; pn g
Hexadecimal Value	X'1B' X'5B' p1 X'3B' pn X'67'
Decimal Value	27 91 p1 59 pn 103

This command clears horizontal and vertical tab stops. If no parameter is present, the horizontal tab stop at the current position is cleared (default).

p	DESCRIPTION
0 (default)	Clear horizontal tab at current position
1	Clear vertical tab at current position
2	Clear all horizontal tab stops
3	Clear all vertical tab stops

VT**Vertical tab.**

ASCII Code	VT
Hexadecimal Value	X'0B'
Decimal Value	11

This code causes printing to be moved to the left margin at the next vertical tab stop.

ESC J or VTS

Vertical tab setting.

ASCII Code	ESC J or VTS
Hexadecimal Value	X'1B' X'4A' (7-bit) or X'8A' (8-bit)
Decimal Value	27 74 (7-bit) or 138 (8-bit)

This command causes a vertical tab stop to be set to the decipoint value of the current vertical position.

ESC [p1; pn v

Sets vertical tab stops at specified positions (Multiple Vertical Tab Set -VTS).

ASCII Code	ESC [p1; pn v
Hexadecimal Value	X'1B' X'5B' p1 X'3B' pn X'76'
Decimal Value	27 91 p1 59 pn 118

This command sets up to 12 vertical tab stops at each decipoint position specified by p parameters. The tab stops are measured from the top of the page. When specifying more than one position, enter the parameters in ascending order.

FF

Form feed.

ASCII Code	FF
Hexadecimal Value	X'0C'
Decimal Value	12

This code causes the data in the print buffer to be printed out and then advances the paper to the top of the next form.

ESC [p1; p2; p3 r

Form definition (FD).

ASCII Code	ESC [p1; p2; p3 r
Hexadecimal Value	X'1B' X'5B' p1 X'3B' p2 X'3B' p3 X'72'
Decimal Value	27 91 p1 59 p2 59 p3 114

This command sets the page length, top and bottom margins.

The p1, p2 and p3 parameters specify the decipoint values.

pn FUNCTION

p1	Page Length
p2	Top Margin Position From the Beginning of the Page
p3	Bottom Margin Position From the End of the Page

The maximum page length value is 15840 decipoints (22 inches).

ESC [p1; p2 <SP> G

Sets the line/character spacing.

ASCII Code	ESC [p1; p2 <SP> G
Hexadecimal Value	X'1B' X'5B' p1 X'3B' p2 X'20' X'47'
Decimal Value	27 91 p1 59 p2 32 71

This command sets the spacing between lines (p1 parameter) and the horizontal character pitch (p2 parameter) in decipoins.

If the vertical spacing value exceeds the current form length, this setting is ignored.

Interface Control

NUL

Ignored.

ASCII Code	NUL
Hexadecimal Value	X'00' or NUL
Decimal Value	00

This code is ignored.

ENQ

Enquiry.

ASCII Code	ENQ
Hexadecimal Value	X'05'
Decimal Value	5

This code is used to request the message string defined by the OSC command when parameter p1=8 is transmitted to the host.

DC1

Selects printer (Data Control 1).

ASCII Code	DC1
Hexadecimal Value	X'11'
Decimal Value	17

In parallel interface, this code reselects the printer after the printer has been deselected by a DC3 code.

In serial interface, this code is sent from the printer to the host to indicate that the printer is ready to receive data.

DC3

Deselects printer (Data Control 3).

ASCII Code	DC3
Hexadecimal Value	X'13'
Decimal Value	19

In parallel interface, this code causes the printer to enter the standby condition until a DC1 code is received.

In serial interface, this code is sent from the printer to the host to indicate that it is not ready to receive data.

Operating System Control

BEL

Bell.

ASCII Code	BEL
Hexadecimal Value	X'07'
Decimal Value	7

This code causes the buzzer to sound for about 0.5 second.

DEL

Delete.

ASCII Code	DEL
Hexadecimal Value	X'7F'
Decimal Value	127

In parallel interface, this code causes the last received character to be deleted.

ESC

Escape.

ASCII Code	ESC
Hexadecimal Value	X'1B'
Decimal Value	27

This code is used as an escape sequence introducer.

ESC \ or ST

String terminator.

ASCII Code	ESC \ or ST
Hexadecimal Value	X'1B' X'5C' (7-bit) or X'9C' (8-bit)
Decimal Value	27 92 (7-bit) or 156 (8-bit)

This command closes the other escape sequences including the operating system and dot graphics commands.

ESC Q or PU1

Executes Selftest.

ASCII Code	ESC Q or PU1
Hexadecimal Value	X'1B' X'51' (7-bit) or X'91' (8-bit)
Decimal Value	27 81 (7-bit) or 145 (8-bit)

In serial interface, upon receipt of this command the printer transmits 1B 50 30 1B 5C.

ESC c

Resets to initial state (RIS).

ASCII Code	ESC c
Hexadecimal Value	X'1B' X'63'
Decimal Value	27 99

This command writes the printer parameters from the stored format assigned to the current path into the current format.

ESC k

Prints test character (PTC).

ASCII Code	ESC k
Hexadecimal Value	X'1B' X'6B'
Decimal Value	27 107

This sequence causes one line of the print head test character to be printed.

ESC [p1; ... pn h

Sets mode (SM).

ASCII Code	ESC [p1; ... pn h
Hexadecimal Value	X'1B' X'5B' p1 X'3B' ... pn X'68'
Decimal Value	27 91 p1 59 ... pn 104

This command sets a specific print mode according to the parameter value. If the first parameter (p1) is preceded by a ">" symbol then all parameters are interpreted as proprietary defined parameters. If the ">" character is not specified, all parameters are interpreted as ANSI defined parameters.

The proprietary defined parameter values are:

p	MNEMONIC	MODE FUNCTION
1	PRM0	Proportional Print Mode
2	CSI	Single Character CSI Mode
3	BLD	Bold Mode
4	CS2	Character Set 2 Mode

The ANSI defined parameter values are:

p	MNEMONIC	MODE FUNCTION
0	Ignored	
20	LNM	Auto CR on LF

ESC p1; pn I

Resets mode (RM).

ASCII Code	ESC p1; pn I
Hexadecimal Value	X'1B' X'5B' p1 X'3B' pn X'6C'
Decimal Value	27 91 p1 59 pn 108

This sequence resets the print mode(s) indicated by the p1/pn parameter(s).

ESC [p1; p2 SP~**Selects emulation (EMU).**

ASCII Code	ESC [p1; p2 SP~
Hexadecimal Value	X'1B' X'5B' p1 X'3B' p2 X'20' X'7E'
Decimal Value	27 91 p1 59 p2 32 126

This sequence selects the emulation according to p values. The p1 parameter is an emulation identifier value while p2 is a reset control value.

The proprietary defined parameter values are:

p1	p2	FUNCTION
0		ANSI
1 -20		Reserved
21		IBM Proprinter XL 24/24E
22		EPSON LQ 1050

- 0 Hold values (default). The current settings remain valid after changing the printer emulation.
- 1 Full reset. The status of such parameters reverts to defaults dependent on the selected emulation.

To select ANSI mode from the Proprinter XL 24 mode and maintain the parameters, the sequence would be: <ESC>[0; 0<SP>~ Leading zeros and defaulting parameters are not guaranteed to be parsed and therefore should not be used by the application. Parameter p1 & p2 will be expressed as ASCII, not binary, values. In the example above, "0" is "30H", not "00H".

Paper Path Selection**ESC [p1; pn p****Assign source for forms.**

ASCII Code	ESC [p1; p2 p
Hexadecimal Value	X'1B' X'5B' p1 X'3B' pn X'70'
Decimal Value	27 91 p1 59 pn 32 112

This command controls the modes of paths for parking, loading paper. The p parameter is an ASCII value.

See the following table:

P	PAPER PATH CONTROL
0-7	Reserved
8	Park paper in the current path. Fanfold can be moved backwards for two form lengths. This creates a "Paper Out" fault condition that exists until paper is loaded from the control panel.
9	Load Paper from the selected paper path.
10	Select and load paper from the Front2 (is the optional Front 2 push tractor assembly is installed). The current paper will be parked or ejected.
11	Select and load paper from the Front 1. The current paper will be parked.
13	Select and load paper from the Front 2. (is the optional Front 2 push tractor assembly is installed). The current paper will be parked or ejected.
14	Reserved

Graphics Control Functions

ESC [p1 q

Select graphics mode/density (GRM).

ASCII Code	ESC [p1 q
Hexadecimal Value	X'1B' X'5B' p1 X'71'
Decimal Value	27 91 p1 113

This command selects the density of the graphics mode.

p	DPI (Horizontal)	Image	dpi vertical	#bytes/dot-column
	AGM=N	AGM=Y		
0	72	60	real	72 1 (6-bit mode)
1	144	120	real	72 1 (6-bit mode)
3	216	180	real	72 1 (6-bit mode)
10	180	180	real	180 4 (24-bit mode)
11	360	360	virtual	180 4 (24-bit mode)

If ASF has not been selected (n=15/16/17 or via operator panel), then n=1—4 is ignored. The appropriate path option must be selected from the System Menu in order for the sheet feeder to work.

ESC P data

Enter dot graphics mode (Device Control String).

ASCII Code	ESC P data
Hexadecimal Value	X'1B' X'50' data
Decimal Value	27 80

This command enables the dot graphics mode. The density is selected according to the GRM command. The line spacing value automatically changes if 72-dpi resolution (6-bit mode) is active.

The line spacing value for 180-dpi resolution (24-bit mode) must be selected prior to entering graphics mode.

In 6-bit mode, only 6 bits of a data byte are required to determine which wires are fired. Therefore, only one byte is required for each graphics dot column.

In 24-bit mode, 24 bits of four data bytes are required to determine which wires are fired. Only 6 bits of each byte are used. Therefore, four bytes are required for each graphics dot column.

Table 3. 6-bit mapping

6 BITS IN 1 BYTE				PRINT HEAD WIRE
				DATA BIT
1	2	&	3	0
3	4	&	5	1
6	7	&	8	2
8	9	&	10	3
11	12	&	13	4
13	14	&	15	5

Since bits 6&7 are ignored, wires 16-24 are not used. The state (0 or 1) of bits 6 and 7 must be conditioned so as to make the entire byte fall within the range 20H through 7EH.

Table 4. 24-bit mapping

BYTE	PRINT HEAD WIRE	24 BITS IN 1 BYTE	
		DATA BIT	
1	1	0	
	2	1	
	3	2	
	4	3	
	5	4	
	6	5	
	7	0	
2	8	1	
	9	2	
	10	3	
	11	4	
	12	5	
	13	0	

Table 5. 24-bit mapping (cont.)

BYTE	PRINT HEAD WIRE	24 BITS IN 1 BYTE	
		DATA BIT	
3	14	1	
	15	2	
	16	3	
	17	4	
	18	5	
	19	0	
	20	1	
4	21	2	
	22	3	
	23	4	
	24	5	

Barcode Functions

ESC [p1; pn }

Sets bar code parameters (BC).

ASCII Code	ESC [p1; pn }
Hexadecimal Value	X'1B' X'5B' p1 X'3B' pn X'7D'
Decimal Value	27 91 p1 59 pn 125

This command allows selection of the bar code characteristics such as style height, symbol rotation and so on. The command ESC [3 t enables the bar code mode while ESC [0 t disables the mode.

p1: Bar code style**p1 FUNCTION**

- 0 Interleaved 2 of 5
- 1 Bidirectional 2 of 5
- 2 Matrix 2 of 5
- 3 Industrial 2 of 5
- 4 Code 3 of 9 (default)
- 5 EAN-8
- 6 EAN-13
- 7 Code 11
- 9 Codabar (default start/stop = a/t)
- 10 Codabar (default start/stop = b/n)
- 11 Codabar (default start/stop = c/*)
- 12 Codabar (default start/stop = d/e)
- 13 UPC-A
- 14 UPC-E
- 15 Code 93
- 16 Code 128 (subset A, B and C)
- 17 Code 128 (subset A, B and C)
- 18 Code 128 (subset A, B and C)
- 19 MSI
- 20 UPC 2 Supplemental

- 21 UPC 5 Supplemental
- 22 EAN 2 Supplemental
- 23 EAN 5 Supplemental
- 50 Postnet

p2: Barcode Height**p2 FUNCTION**

- 1 Minimum bar code height (1/12 inch)
- 120 Maximum bar code height (10 inches)
- 12 Default bar code height (1 inch)

p3: Human Readable Input (HRI)**p3 FUNCTION**

- 0 Disables printing of the HRI
- 1 Enables printing of the HRI (default)

p4: Narrow Bar

Default width value: 2 (120, 144 and 180 dpi)

p5: Wide Bar Width

Default width value: 3 (120, 144 dpi), 4 (180 dpi)

p6: Narrow Space Width

Default width value: 6 (120, 144 and 180 dpi)

p7: Wide Space Width

Default width value: 7 (120, 144 dpi), 8 (180 dpi)

p8: Intercharacter Space Width

Default width value: 3 (120, 144 dpi), 4 (180 dpi)

p9: Rotation**p9 FUNCTION**

- 0 0 degrees using current font
- 1 0 degrees using special HRI font
- 2 90 degrees using special HRI font
- 3 180 degrees using special HRI font
- 4 270 degrees using special HRI font

p10: Horizontal Print Density for Bar Codes Printed**p10 FUNCTION**

- 1 120 dpi horizontal density
- 2 144 dpi horizontal density (Reserved)
- 3 180 dpi horizontal density

p11: Check Digit**p11 FUNCTION**

- 0 No check digit requested (default)
- 1 Check digit requested

p12: Human Readable Font -Reserved**p13: Bar Code Height (in 1/24th-inch increments) -Reserved**

Basic Program Sample

```

100 DEFSTR  DEFSTR      E:ESC=CHRS(27) 'Define Escape character
110 WIDTH   WIDTH       .LPT1:*,255
120 LPRINT  LPRINT      .FOLLOWING ARE SOME OF THIS PRINTER'S .;
121 LPRINT  LPRINT      .FEATURES USING THE ANSI EMULATION.
130 LPRINT  LPRINT      ESC;[,72 C.,,10 CPI (PICA).
140 LPRINT  LPRINT      ESC;[,60 G.,,12 CPI (ELITE).
150 LPRINT  LPRINT      ESC;[,48 G.,,15 CPI.
160 LPRINT  LPRINT      ESC;[,72 C.,,10 CPI.
170 LPRINT  LPRINT
180 LPRINT  LPRINT      ESC;,[6m.,,PROPOERTIONAL MODE.
190 LPRINT  LPRINT      ESC;,[0m.,,BACK TDO NORMAL.
200 LPRINT  LPRINT
210 LPRINT  LPRINT      ESC;,.5m.,,DOUBLE-WIDE MODE.
220 LPRINT  LPRINT      LPRINT ESC;,.0m.,,BACK TO NORMAL.
230 LPRINT  LPRINT
240 LPRINT  LPRINT      LPRINT ESC;,[1m.,,BOLD PRINTING.
250 LPRINT  LPRINT      LPRINT ESC;,[0m.,,BACK TO NORMAL.
260 LPRINT  LPRINT      LPRINT ESC;,[1m.,,BOLD PRINTING.
270 LPRINT  LPRINT      LPRINT ESC;,[0m.,,BACK TO NORMAL.
280 LPRINT  LPRINT
290 LPRINT  LPRINT      ESC;,.L.,,PARTIAL LINE UP .;
300 LPRINT  LPRINT      ESC;,.K.,,/ .;
310 LPRINT  LPRINT      ESC;,.L.,,BACK TO NORMAL.
320 LPRINT  LPRINT
340 LPRINT  LPRINT      ESC;,[4m.,,UNDERLINE MODE.
350 LPRINT  LPRINT      ESC;,[0m.,,BACK TO NORMAL.
260 LPRINT  LPRINT
370 LPRINT  LPRINT      .
371 LPRINT  LPRINT      123.:
380 LPRINT  LPRINT      '456.
381 LPRINT  LPRINT      .123456789012345678901234567890.:
390 LPRINT  LPRINT      .12345678901234567890.
400 LPRINT  LPRINT      ESC;,[10m.,,DRAFT PRINT MODE.
410 REM    REM
420 LPRINT  LPRINT      ESC;,[720;2880s.
430 REM    REM
440 LPRINT  LPRINT      .LEFT MARGIN NOW BEGINS AT 1 INCH AND .;
441 LPRINT  LPRINT      .RIGHT MARGIN NOW ENDS AT 4 INCHES.
450 LPRINT  LPRINT      ESC;,[0;9792S.
460 REM    REM
470 LPRINT  LPRINT      .LEFT MARGIN NOW BEGINS AT 0 INCH AND .;
471 LPRINT  LPRINT      .RIGHT MARGIN NOW ENDS AT 13.6 INCHES.
480 LPRINT  LPRINT
490 LPRINT  LPRINT      ESC;,[62m.,,LQ PRINT MODE .
500 LPRINT  LPRINT
510 LPRINT  LPRINT      ESC;,[120; G.:
520 FOR    [=1 TO 3
530 LPRINT  LPRINT      .1/6 INCH LINE FEED.
540 NEXT   I
550 LPRINT  LPRINT
560 LPRINT  LPRINT      ESC;,[90; G.:
570 FOR    J=1 TO 3
580 LPRINT  LPRINT      .1/8 INCH LINE FEED.
590 NEXT   J
600 LPRINT  LPRINT      ESC;,[120; G.,,NOW 1/6 INCH LINE FEED.
610 LPRINT  LPRINT      .A FORMFEED <FF> FOLLOWS THIS LINE.;CHR$(12)
620 END

```

Basic Program Printed Output

```
FOLLOWING ARE SOME OF THIS PRINTER'S FEATURES USING THE ANSI EMULATION  
10 CPI (PICA)
```

```
12 CPI (ELITE)
```

```
15 CPI
```

```
10 CPI
```

```
PROPORTIONAL MODE
```

```
BACK TO NORMAL
```

```
DOUBLE-WIDE MODE
```

```
BACK TO NORMAL
```

```
BOLD PRINTING
```

```
BACK TO NORMAL
```

```
BOLD PRINTING
```

```
BACK TO NORMAL
```

```
PARTIAL LINE UP / PARTIAL LINE DOWN BACK TO NORMAL
```

```
UNDERLINE MODE
```

```
BACK TO NORMAL
```

```
1 2 3 4 5 6  
12345678901234567890123456789012345678901234567890
```

```
DRAFT PRINT MODE
```

```
LEFT MARGIN NOW BEGINS AT 1 IN  
CH AND RIGHT MARGIN NOW ENDS A  
T 4 INCHES
```

```
LEFT MARGIN NOW BEGINS AT 0 INCH AND RIGHT MARGIN NOW ENDS AT 13.6 INCHES
```

```
LQ PRINT MODE
```

```
1/6 INCH LINE FEED
```

```
1/6 INCH LINE FEED
```

```
1/6 INCH LINE FEED
```

```
1/8 INCH LINE FEED
```

```
1/8 INCH LINE FEED
```

```
1/8 INCH LINE FEED
```

```
NOW 1/6 INCH LINE FEED
```

```
A FORMFEED <FF> FOLLOWS THIS LINE
```

Chapter 4 LQ1600K Emulation Commands (DBCS)

Note: These commands are only valid for DBCS printing with the DBCS feature present.

DBCS mode is a special printer feature allowing the managing of specific commands dedicated to the handling and printing of the Double Byte Character Set (DBCS) as the GB18030 Standard Chinese set.

The DBCS mode feature is available by the selection the Epson LQ 1600K emulation at the "EMULATION" menu setting parameter. Other emulation selections do not support the DBCS mode.

Once the Epson LQ1600K has been selected, the DBCS mode is activated and deactivated through dedicated commands (FS & and FS).

When DBCS mode is activated, the printer prints the DBCS (GB18030) and recognizes and manages the incoming data and commands via the FS sequences.

In both cases, the Epson LQ 1600K emulation includes all the other Epson LQ standard ESC sequences, some of which can take effect immediately, even if DBCS mode is active, while some others are postponed until the printer exits the DBCS mode.

The following EPSON LQ Standard ESC sequences will work in DBCS mode:

ESC(W)n Set or cancel double width printing.

ESC(w)n Set or cancel double height printing.

Please refer to the other chapters of this manual for the complete list and description of the available ESC sequences.

FS &

Enter the DBCS print mode.

ASCII Code	FS &
Hexadecimal Value	X'1C' X'26'
Decimal Value	28 38

This command puts the printer in DBCS mode and recognizes all other FS commands, Epson standard ESC sequences, and prints all of the symbols of the GB18030 font set addressed by way of a single byte, two byte, and four byte address.

FS .

Exit the DBCS print mode.

ASCII Code	FS .
Hexadecimal Value	X'1C' X'2E'
Decimal Value	28 46

This command exits DBCS mode and the printer exits the GB18030 font set, prints with western font set, and recognizes all Epson standard ESC sequences. Only the FS & command is accepted to re-enter the DBCS mode.

FS SO

Sets double width mode.

ASCII Code	FS SO
Hexadecimal Value	X'1C' X'0E'
Decimal Value	28 14

All of the characters following this command are printed horizontally, enlarged two times. This print mode is reset by DC4, FS DC4 commands and automatically resets at the end of the line with a line terminator (LF, FF, CR, ...)

FS DC4

Resets double width mode.

ASCII Code	FS DC4
Hexadecimal Value	X'1C' X'14'
Decimal Value	28 20

This command resets the double width print mode previously set by the FS SO command.

FS W n

Sets -Resets quadruple print mode.

ASCII Code	FS W n
Hexadecimal Value	X'1C' X'57' n
Decimal Value	28 87 n
Range	n = 1 set
	n = 0 reset

This command sets (n=1) double width and double height print mode. The character dimension will be 2x2 the normal dimension.

With n=0 the double width/height print mode is reset.

FS J

Sets 90 degrees counterclockwise character rotation.

ASCII Code	FS J
Hexadecimal Value	X'1C' X'4A'
Decimal Value	28 74

Printable data after this command are rotated 90 degrees counterclockwise. This mode is also called vertical print.

FS K

Resets character rotation.

ASCII Code	FS K
Hexadecimal Value	X'1C' X'4B'
Decimal Value	28 75

This command resets the vertical print which was set by FS J and resumes horizontal printing.

FS D d1 d2

Composes two half-width, rotated characters into a normal size rotated character space.

ASCII Code	FS D d1 d2
Hexadecimal Value	X'1C' X'44' d1 d2
Decimal Value	28 68 d1 d2

d1 = 1' character address
d2 = 2' character address

The d1 character is printed in half width and rotated 90° counterclockwise.

The d2 character is composed in half width, rotated 90° counterclockwise, and it is printed above the d1 character.

The occupied space is the same as a normal size rotated character.

FS -n

Sets -Resets underline mode.

ASCII Code	FS -n
Hexadecimal Value	X'1C' X'2D' n
Decimal Value	28 45 n

Range

- n = 0 resets underline mode.
- n = 1 sets single underline mode.
- n = 2 sets double underline mode.

This command sets two different types of underline:

- n=1 A single dotted line.
- n=2 A double dotted line.

Unrelining character will terminate when a new FS-n command is received and n=0.

FS S n1 n2

Defines the left and right empty character space of a normal-sized character.

ASCII Code	FS S n1 n2
Hexadecimal Value	X'1C' X'53' n1 n2
Decimal Value	28 83 n1 n2

n1 and n2 are in n/180 of an inch.

n1 (1 to 127) defines the empty space at the left of the character cell. n2 (1 to 127) defines the empty space at the right of the character cell of each normal sized character.

The default values are: n1=0, n2=1.5.

For example, if a normal sized character cell is 12/180 wide, with the default values, the equivalent character per inch is $180/13.5 = 13.3$ characters per inch.

FS T n1 n2

Defines the left and right empty character space of a half-sized character.

ASCII Code	FS T n1 n2
Hexadecimal Value	X'1C' X'54' n1 n2
Decimal Value	28 84 n1 n2

n1 and n2 are in n/180 of an inch.

n1 (1 to 127) defines the empty space at the left of the character cell. n2 (1 to 127) defines the empty space at the right of the character cell of each half sized character.

The default values are: n1=0, n2=1.5.

For example, if a half sized character cell is 12/180 wide, with the default values, the equivalent character per inch is $180/13.5 = 13.3$ char./inch.

FS U

Define half-sized character as half of a normal sized character.

ASCII Code	FS U
Hexadecimal Value	X'1C' X'55'
Decimal Value	28 85

This command sets the size of the character to be half of the normal size including the left and right empty space so that two half sized characters occupy the same space of one normal sized character.

FS SI

Sets the print of half-sized characters.

ASCII Code	FS SI
Hexadecimal Value	X'1C' X'0F'
Decimal Value	28 15

This command sets the print of half sized characters as defined by the FS U and FS T commands.

FS V

Resets print of half-sized characters.

ASCII Code	FS V
Hexadecimal Value	X'1C' X'56'
Decimal Value	28 86

This command cancels the print of half sized characters.

FS r n

Sets superscript or subscript print mode (1/4 normal size).

ASCII Code	FS rn
Hexadecimal Value	X'1C' X'72' n
Decimal Value	28 114 n
	n=0 set superscript print
	n=1 set subscript print

This command sets printing of superscript and subscript characters. The size of the characters is 1/4 of normal size. The character prints in the upper area (superscript) or lower area (subscript). For example, superscript and subscript.

FS DC2

Cancels half-sized and 1/4-sized print and restores normal size print.

ASCII Code FS DC2
Hexadecimal Value X'1C' X'12'
Decimal Value 28 18

This command cancels printing of superscript and subscript characters. Normal sized printing is resumed.

FS x n**Sets print quality level for the DBCS font set.**

ASCII Code	FS xn
Hexadecimal Value	X'1C' X'78' n
Decimal Value	28 120 n
	n=0 set Draft (high speed)
	n=1 set Quality (low speed)

There are four type of print quality level, two for Draft mode and two for Quality mode. A specific Menu Item (see the Administrator's Manual) assigns which of the two Draft modes is activated when the parameter n is equal to 0 and which of the two Quality modes is activated when the parameter n is equal to 1.

n=0 Activate the NLQ or LQ mode as specified with the "SW Qual-Level" menu item.

n=1 Activates the Draft or Best Draft mode as specified with the "SW Qual-Level" menu item.

FS 2 a¹ a² n¹... n⁷²**Sets user-defined character (DownLoading).**

ASCII Code	FS 2 a1 ... n72
Hexadecimal Value	X'1C' X'32' ...
Decimal Value	28 50 ...

a¹ a² = The address of the GB18030 character set where the character to download has to be allocated.

The address must be included in the following ranges: X'AAA1' to X'AFFE', X'F8A1' to X'FEFE', X'A140' to X'A7A0'.

n¹ ... n⁷² = The shape of the character in dots as defined over a matrix of 24vx24h dot matrix.

Three bytes in vertical are equivalent to the 24 dots of any column; when multiplied by 24 columns it is equal to 72 bytes in total per character.

FS ! n**Sets multiple print attribute at once.**

ASCII Code	FS ! n
Hexadecimal Value	X'1C' X'21' n
Decimal Value	28 33 n

This command sets multiple print attributes depending on the nparameter as follows:

- Bit=1 Bit=0
- Bit 7 underline –
- Bit 6 -- –
- Bit 5 subscript superscript
- Bit 4 1/4 size –
- Bit 3 double height –
- Bit 2 double width –
- Bit 1 half size –
- Bit 0 rotate print normal print

FS v n**Sets - Cancels line drawing character connection mode.**

ASCII Code	FS vn
Hexadecimal Value	X'1C' X'76' n
Decimal Value	28 118 n

When n=1, this command allows the printer to fill the horizontal and vertical breaking point of a table that is being printed. This is accomplished by adding special horizontal or vertical line drawing characters.

These characters are in the following address ranges: X'A854' to X'A970', X'A9A4' to X'A9A7', X'A9B0' to X'A9BF'.

When n=0, the function is cancelled.

FS c nl nh**Sets the HMI (Horizontal Motion Index)**

ASCII Code	FS c nl nh
Hexadecimal Value	X'1C' X'63' nl nh
Decimal Value	28 99 nl nh

This command defines the horizontal motion (space) occupied by a full size character. The horizontal motion is specified in n/180 of inch and its value is: HMI = ((nh * 256) + nl) * 1/180".

FS b n**Sets the DBCS standard line.**

ASCII Code	FS bn
Hexadecimal Value	X'1C' X'62' n
Decimal Value	28 98 n

This command defines the position of the base line of the character.

n=0 The base line is the current print position.

n=1 The base line is 24/180 of an inch below the current position.

ESC (X n1 n2 a1 a2 a3**Defines a special printing effect.**

ASCII Code	ESC (X
Hexadecimal Value	X'1B' X'28' X'58' ...
Decimal Value	27 40 88 ...

n=1 Fixed to 3.

n=2 Fixed to 0.

a=0 Applies the special effect externally to the characters.

a=1 Applies the special effect internally to the character (if the character is outlined) – function not supported

a=0 Resets any special effect.

a=1 Reverse the print (white character on a black background).

a=2 Fills the area with light gray tone.
a=3 Fills the area with medium gray tone.
a=4 Fills the area with high grey tone.

ESC | n

Sets – Resets double width and double height print modes.

ASCII Code	ESC | n
Hexadecimal Value	X'1B' X'49' n
Decimal Value	27 73 n

This command sets and resets the following print modes as follows:

n=A Resets double width and double height.
n=B Sets double width.
a=C Sets double height.
a=D Sets double width and height.

Appendix A. Code Pages

See the "ASCII Code Pages" for information about the code pages for Ethernet ASCII attachments.

You can use the following charts to determine the actual character printed for any code page and font combination.

ASCII Code Pages

The table below lists the ASCII code pages used by the S809 Printer, and also provides page references so you can determine what code page contains the characters you want to use.
These Code Pages can be found in the EPSON/IBM/ANSI emulations.

Code Page	Character Set Name
437	USA (Personal Computer) A-54
437-G	Greek
437-SL	Croatian
850	PC Multilingual
851	Old Greek
852	Latin 2/ROECE
853	Latin 3 (PC)
855	Cyrillic (PC)
857	Latin 5-Turkey + euro
858	PC Multilingual + euro
860	Portuguese
862	Hebrew
863	Canadian French
864E	Arabic
865	Danish/Norwegian
866	PC Data, Cyrillic, Russian
867	Turkish 2
876	OCR-A
877	OCR-B
1098	Farsi (Personal Computer)
1250	Central Europe Latin 2
1251	Cyrillic
1252	Latin 1 Ansi Windows
1253	Greek Windows
1254	Turkish Windows
1255	Hebrew Windows
1256	Arabic Windows
1257	Baltic Windows
MAZOWIA	Polish
GOST	Russian
TASS	Cyrillic
UKRANIAN	old version
KOI8-U	new version
FARSI 1	
FARSI 2	

Code		
Page	Character Set Name	Page
Kamenicky		
CWI		
Roman-8		
IN2		
Turkish		
Bulgarian		
ISO 8859-1	Latin 1	
ISO 8859/2	Latin 2	
ISO 8859/3	Latin 3	
ISO 8859/4	Latin 4	
ISO 8859-5	Latin/Cyrillic	281
ISO 8859-6	Latin/Arabic	300
ISO 8859-7	Latin/Greek	301
ISO 8859-8	Latin/Hebrew	302
ISO 8859-9	Latin 5	305
ISO 8859-15	Latin 9	308
96 GREEK		
Extended Graphics Character Table		318
Italic Character Table		319
Epson Extended Character Variables		320
ANSI National Variations		

USA (Personal Computer) A-54**Code Page 00437**

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0	► (SP) SM590000	0 ND100000 SP010000	@ SM050000 LP020000	P SD130000 LP010000	' LC420000 LA120000	p LQ010000 LU170000	ç LA110000 LA510000	é LQ110000 LJ110000	á LJ110000 LA110000	í SF140000 SF020000	á SF150000 SF070000	é SF040000 SF470000	é SF160000 SF060000	á SF480000 GA010000	á SA480000 GA010000	≡
-1	☺ SS010000 SM630000	! SM020000 SP020000	1 ND010000 LA020000	A LQ020000 LA010000	Q LQ010000 LU170000	a LQ010000 LA510000	q LU170000 LA110000	ü LA110000 LJ110000	æ LJ110000 LA110000	í SF150000 SF070000	í SF040000 SF470000	í LS610000 SA020000	í LS610000 SA020000	í LS610000 SA020000	í LS610000 SA020000	
-2	☻ SS010000 SM760000	↑ SP048000 ND020000	" SM020000 LB020000	2 LB020000 LR020000	B LR020000 LB010000	R LB010000 LR010000	b LR010000 LE110000	r LE110000 LA520000	é LA110000 LO110000	æ LO110000 SF110000	æ SF110000 SF080000	æ SP490000 GP010000	æ GP010000 SA520000	æ GP010000 SA520000	≥	
-3	♥ SS020000 SP330000	!! SM010000 ND030000	# ND030000 LC020000	3 LC020000 LS020000	C LS020000 LC010000	S LS010000 LS100000	c LS010000 LA150000	s LA150000 LO150000	â LO150000 LU110000	ô LU110000 SF110000	ô SF110000 SF080000	ô SP490000 GP010000	ô GP010000 SA520000	ô GP010000 SA520000	≤	
-4	♦ SS030000 SM250000	¶ SC030000 ND040000	\$ LD040000 LT020000	4 LD040000 LT020000	D LT020000 LD010000	T LT010000 LA170000	d LT010000 LO170000	t LA170000 LN190000	ä LN190000 SF090000	ä SF090000 SF100000	ä SF100000 SF500000	ä GS020000 GS020000	ä GS020000 GS020000	ä GS020000 GS020000	f	
-5	♣ SS040000 SM240000	§ SM020000 ND050000	% LE020000 LU020000	5 LE020000 LU010000	E LU010000 LA010000	U LU010000 LA130000	e LU010000 LA130000	u LA130000 LO130000	à LO130000 LN200000	à SF190000 SF050000	à SF190000 SF510000	à GS010000 GS010000	à GS010000 GS010000	à GS010000 GS010000	J	
-6	♠ SS050000 SM700000	- SM030000 ND060000	& LF020000 LV020000	6 LF020000 LV010000	F LV010000 LV010000	V LV010000 LA270000	f LV010000 LU150000	v LA270000 SM210000	å SM210000 SF200000	å SF200000 SF360000	å SF200000 SF520000	å GM010000 GM010000	å GM010000 SA060000	å GM010000 SA060000	÷	
-7	● SM570000 SM770000	↑ SP050000 ND070000	' LG020000 LW020000	7 LG020000 LW010000	G LW010000 LG010000	W LW010000 LG010000	g LW010000 LC410000	w LG010000 LU130000	ç LU130000 SM200000	ç SF210000 SF370000	ç SF210000 SF330000	ç GT010000 GT010000	ç GT010000 SA700000	ç GT010000 SA700000	≈	
-8	█ SM570001 SM320000	↑ SM060000 ND080000	(LH020000 LX020000	8 LH020000 LX020000	H LX020000 LH010000	X LX010000 LH010000	h LX010000 LE150000	x LX010000 LY170000	é LY170000 SP160000	é SP160000 SF220000	é SF220000 SF380000	é SF220000 SF540000	é GF020000 GF020000	é GF020000 SM190000	ø	
-9	○ SM750000 SM330000	↓ SM070000 ND090000	) LJ020000 LY020000	9 LJ020000 LY020000	I LJ010000 LY010000	Y LJ010000 LY010000	i LJ010000 LE170000	y LY010000 LO180000	ö SM680000 SF230000	ö SF230000 SF390000	ö SF230000 SF040000	ö SF230000 GT620000	ö SF230000 SA790000	ö SF230000 SA790000	*
-A	◎ SM470002 SM310000	→ SM040000 SP130000	* LJ020000 LJ020000	:	J LJ020000 LJ010000	Z LJ010000 LZ010000	j LJ010000 LE130000	z LZ010000 LU180000	ë LU180000 SM660000	ë SF240000 SF400000	ë SF240000 SF010000	ë SF240000 GO320000	ë SF240000 SD630000	ë SF240000 SD630000	*	
-B	♂ SM280000 SM300000	← SM010000 SA010000	+ SP140000 LK020000	;	K LK020000 SM060000	[LK010000 SM110000	k LK010000 LJ170000	{ LJ170000 SC040000	í NF010000 NF010000	í SF250000 SF410000	í SF250000 SF610000	í SF250000 GD010000	í SF250000 SA300000	í SF250000 SA300000	δ	
-C	♀ SM290000 SA420000	, SP080000 SA030000	< LJ020000 LL020000	L LJ020000 SM070000	\ LJ010000 LL010000	\ LJ010000 SM130000	l LJ010000 LJ150000	| LJ010000 SC020000	£ NF040000 NF040000	£ SF260000 SF420000	£ SF260000 SF570000	£ NF040000 SA450000	£ NF040000 LN011000	£ NF040000 LN011000	n	
-D	⌚ SM930000 SM780000	↔ SP100000 SA040000	- LM020000 SM080000	= LM010000 SM140000	M LM010000 SM140000	] LM010000 LJ130000	m LM010000 SC050000	) LJ130000 SP030000	¥ SP030000 SF270000	¥ SF270000 SF430000	¥ SF270000 SF580000	¥ GF010001 GF010001	¥ GF010001 ND021000	¥ GF010001 ND021000	2
-E	♪ SM910000 SM600000	. SP110000 SA050000	> LN020000 SD150000	N LN010000 LN010000	^ SD150000 SD190000	~ LN010000 LA180000	n LN010000 SC060000	~ LA180000 SP170000	ä SP170000 SF280000	ä SF280000 SF440000	ä SF280000 SF590000	ä GE010000 GE010000	ä GE010000 SM470000	ä GE010000 SM470000	ε	
-F	☀ SM690000 SV040000	/ SP120000 SP150000	? LO020000 SP150000	O LO010000 SP150000	— SP150000 SP150000	o LO010000 LA280000	— LO010000 SC070000	— LA280000 SP180000	å SP180000 SF030000	å SF030000 SF450000	å SF030000 SF600000	å SF030000 SA380000	å SF030000 SP300000	å SF030000 SP300000	(RSP)	

Figure 2. USA(CP437)

Greek

Code Page 00437-G

Figure 3.Greek(CP437-G)

Croatian**Code Page 00437-SL**

	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
0		0	ž	P	ž	p	ç	é	á		l	ll	α	≡
1	!	1	A	Q	a	q	u	æ	1		ł	łł	β	±
2	"	2	B	R	b	r	é	ä	ó		T	T	Γ	≥
3	#	3	C	S	c	s	â	ô	ú	|	ł	łł	π	≤
4	\$	4	D	T	d	t	ä	ö	ñ	ḥ	-	ł	Σ	∫
5	%	5	E	U	e	u	à	ò	ñ	ł	+	f	σ	∫
6	&	6	F	V	f	v	å	ø	ä	ł	ł	ł	μ	÷
7	'	7	G	W	g	w	ç	ù	ö	ł	ł	ł	τ	≈
8	(	8	H	X	h	x	ë	ÿ	ż	ł	ł	ł	φ	°
9	)	9	I	Y	i	y	ë	ö	ñ	ł	ł	ł	θ	•
A	*	:	J	Z	j	z	è	ó	ñ	ł	ł	ł	Ω	•
B	+	;	K	š	k	š	í	¢	ķ	ł	ł	ł	δ	√
C	,	<	L	Đ	l	đ	í	£	ķ	ł	ł	ł	∞	▫
D	-	=	M	ć	m	ć	ı	¥	ı	ł	ł	ł	ø	²
E	.	>	N	č	n	č	ä	Ŗ	«	ł	ł	ł	ε	▪
F	/	?	O	_	o		A	ſ	»	ł	ł	ł	ñ	▫

Figure 4.Croatian(CP437-SLAVIC)

Greek/Latin (ISO 8859-7)**Code Page 00813**

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0	(SP) SP010000	0 ND100000	@ SM050000	P LP020000	' SD130000	p LP010000					(RSP) SP300000	° SM190000	ī G1730000	Π GP020000	ū GU730000	π GP010000
-1	! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000					‘ SP190000	± SA020000	Α GA020000	Ρ GR020000	α GA010000	ρ GR010000
-2	“ SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	ρ LR010000					’ SP200000	2 ND021050	Β GB020000		β GB010000	ζ GS410000
-3	# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000					£ SC020000	³ ND031050	Γ GG020000	Σ GS020000	γ GG010000	σ GS010000
-4	\$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000					‘ SD110000	Δ GD020000	Τ GT020000	δ GD010000	τ GT010000	
-5	% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000					£ SD730000	E GE020000	Υ GU020000	ε GE010000	υ GU010000	
-6	& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000					! SM650000	Ά GA120000	Ζ GZ020000	Φ GF020000	ζ GZ010000	φ GF010000
-7	‘ SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000					§ SM240000	· SD630000	Η GE320000	Χ GH020000	η GE310000	χ GH010000
-8	(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000					“ SD170000	Ἐ GE120000	Θ GT620000	Ψ GP620000	ϳ GT610000	ψ GP610000
-9	) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000					© SM520000	Ἡ GE720000	Ι GI020000	Ω GO320000	ι GI010000	ω GO310000
-A	* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000					Τ GI120000	Κ GK020000	Ϊ GI180000	κ GK010000	Ϊ GI170000	
-B	+\br/>SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM130000					« SP170000	» SP180000	Λ GL020000	Ӯ GU180000	λ GL010000	Ӯ GU170000
-C	, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000					¬ SM660000	Ӧ GO120000	Մ GM020000	á GA110000	μ GM010000	ó GO110000
-D	- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	{ SM140000					(SHY) SP320000	½ NF010000	Ն GN020000	Շ GE110000	Վ GN010000	Ֆ GU110000
-E	. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000					՚ GU120000	Ե GX020000	Շ GE710000	Տ GX010000	Օ GO710000	
-F	/ SP120000	? SP150000	O LO020000	— SP090000	o LO010000					— SM120000	Ղ GO720000	Օ GO020000	Շ GI110000	օ [՛] GO010000		

Figure 5. Greek/Latin (ISO 8859-7)

Latin 1 (ISO 8859-1)**Code Page 00819**

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0		(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000				(RSP) SF300000	° SM150000	À LA140000	Ð LD620000	à LA130000	ð LD630000
-1		! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000				i SP030000	± SA020000	Á LA120000	Ñ LN200000	á LA110000	ñ LN190000
-2		" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000				¢ SC040000	² ND021000	Â LA160000	Ò LO140000	â LA150000	ò LO130000
-3		# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000				£ SC020000	³ ND031000	Ã LA200000	Ó LO120000	ã LA190000	ó LO110000
-4		\$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000				¤ SC010000	' SD110000	Ä LA180000	Ö LO140000	ää LA170000	ö LO150000
-5		% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000				¥ SC050000	µ SM170000	Å LA280000	Õ LO290000	ää LA270000	õ LO190000
-6		& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000				¡ SM650000	¶ SM250000	Æ LA520000	Ö LO180000	æ LA510000	ö LO170000
-7		' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000				§ SM240000	· SD630000	Ç LC420000	× SA070000	ç LC410000	÷ SA060000
-8		(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000				" SD170000	, SD410000	È LE140000	Ø LO620000	è LE130000	ø LO610000
-9		) SP070000	9 ND090000	I LJ020000	Y LY020000	i LJ010000	y LY010000				© SM520000	l ND011000	É LE120000	Ù LU140000	é LE110000	ù LU130000
-A		* SM040000	:	J SP150000	Z LJ020000	j LJ010000	z LJ010000				º SM210000	º SM200000	Ê LE160000	Ú LU120000	ê LE150000	ú LU110000
-B		+	;	K SA140000	[LK020000	k SM060000	{ LK010000	SM110000			« SP170000	» SP180000	Ë LE180000	Û LU160000	ë LE170000	û LU150000
-C		,	< SP080000	L SA030000	\ LL020000	m SM070000	| LL010000	SM130000			¬ SM660000	¼ NF040000	Ì LJ140000	Ü LU180000	í LJ130000	ü LU170000
-D		- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000				(SHY) SP320000	½ NF010000	Í LJ120000	Ý LY120000	í LJ110000	ý LY110000
-E		.	> SP110000	N SA050000	^ LN020000	n SD150000	~ LN010000	SD190000			(®) SM530000	¾ NP050000	Î LJ160000	Þ LT640000	î LJ150000	þ LT630000
-F		/	?	O SP120000	— LO020000	o SP090000		LO010000			- SM150000	ö SP160000	Ï LJ180000	ß LS610000	ï LJ170000	ÿ LY170000

Figure 6 .ISO8859/1(Latin1)

PC Multilingual

Code Page 00850

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0	► (SP) SM590000	0 (SP) SP010000	@ (ND) ND100000	P (SM050000) LP020000	` (SD130000) LP010000	p (LC420000) LU170000	Ç (LE120000) LA110000	É (SF140000) SF020000	á (L) SF150000	í (SF070000) SF060000	æ (LD630000) LD620000	ð (LO120000) LO110000	ó (SHY) SP320000			
-1	☺ (SS000000) SM630000	! (SM020000) SP020000	1 (ND010000) LA020000	A (LQ020000) LA010000	Q (LQ010000) LU170000	a (LA510000) LI110000	q (LA500000) LU110000	ü (SF160000) SF080000	æ (SF070000) SF060000	í (LD620000) LS610000	ð (SA020000) SA010000	ó (LO160000) LO150000	é (SM10000) NF050000	á (SM16000) NF040000	± (SM17000) NF030000	
-2	☻ (SS010000) SM760000	“ (SM040000) SP040000	2 (ND020000) LB020000	B (LR020000) LB010000	R (LR010000) LE110000	b (LA520000) LO110000	r (LA510000) LU110000	é (SF170000) SF090000	Æ (SF080000) SF070000	ó (LE160000) LE150000	ò (SF090000) SF080000	ó (LO160000) LO150000	ê (LO170000) LO160000	ô (LO180000) LO170000	ô (LO190000) LO180000	
-3	♥ (SS020000) SP330000	!! (SM010000) ND030000	# (LC020000) LS020000	C (LC010000) LS010000	S (LA150000) LU150000	c (LA140000) LU140000	s (LO150000) LU110000	â (SF180000) SF110000	ô (SF090000) SF080000	ú (SF190000) SF120000	ü (SF100000) SF090000	ü (LE180000) LE170000	ë (LO190000) LO180000	ë (LO190000) LO180000	¼ (NF050000) NF040000	
-4	♦ (SS030000) SM250000	¶ (SC030000) ND040000	\$ (LD020000) LT020000	4 (LD010000) LT010000	D (LA170000) LO170000	t (LA160000) LO160000	ä (LN190000) LN190000	ö (SF100000) SF090000	ñ (SF110000) SF100000	ñ (LE140000) LE130000	ñ (SF120000) SF110000	ñ (LO190000) LO180000	ñ (LO190000) LO180000	ñ (SM250000) NF030000		
-5	♣ (SS040000) SM340000	§ (SM020000) ND050000	% (LB020000) LU020000	5 (LE010000) LU010000	E (LA130000) LO130000	U (LA120000) LO120000	e (LN200000) LA120000	u (SF050000) SF040000	à (SF060000) SF050000	ò (SF070000) SF060000	ñ (SF080000) SF070000	ñ (SF090000) SF080000	ñ (SF090000) SF080000	ñ (SF090000) SF080000	§ (SM340000) NF020000	
-6	♠ (SS050000) SM700000	- (SM030000) ND060000	& (LF020000) LV020000	6 (LP010000) LV010000	F (LA270000) LU150000	V (LA210000) SM210000	f (LU150000) LA160000	å (LA160000) LA190000	å (LA170000) LA190000	å (LA180000) LA190000	å (LA190000) LA190000	å (LA190000) LA190000	å (LA190000) LA190000	÷ (SA060000) NF010000		
-7	• (SM570000) SM770000	↓ (SP050000) ND070000	' (LG020000) LW020000	7 (LG010000) LW010000	G (LC410000) LU130000	W (SM200000) LA140000	g (LA140000) LA200000	ç (SM210000) LA200000	ç (SM220000) LA200000	ù (SM230000) LA200000	ø (SM240000) SF010000	ø (SF020000) SF010000	ø (SF030000) SF020000	ø (SF040000) SF030000	÷ (SD410000) NF010000	
-8	█ (SM570001) SM320000	↑ (SP060000) ND080000	((LH020000) LJ020000	8 (LX020000) LJ010000	H (LX010000) LX010000	X (LX010000) LX010000	h (LE150000) LY170000	é (SP160000) SM520000	é (SP170000) SM530000	ý (SP180000) SF380000	ÿ (SP190000) SF390000	ÿ (SF180000) SF170000	ÿ (SF190000) SF180000	ÿ (SF190000) SF180000	º (SM190000) NF010000	
-9	○ (SM750000) SM330000	↓ (SP070000) ND090000	) (LJ020000) LY020000	9 (LJ010000) LY010000	I (LY010000) LE170000	Y (LE180000) LO180000	i (LO180000) LO180000	ë (SM530000) SF230000	ë (SF240000) SF230000	ö (SF250000) SF240000	® (SF260000) SF250000	® (SF270000) SF260000	® (SF280000) SF270000	º (SF290000) SF280000	º (SF290000) SF280000
-A	○ (SM750002) SM310000	→ (SM040000) SP130000	*	: (LJ020000) LZ020000	J (LZ010000) LZ010000	Z (LZ010000) LE130000	j (LE130000) LU180000	è (SM660000) SF400000	è (SF410000) SF400000	ü (SF420000) SF410000	ü (SF430000) SF420000	ü (SF440000) SF430000	ü (SF450000) SF440000	*	(SD430000) NF010000	
-B	♂ (SM280000) SM300000	← (SA010000) SP140000	+	;	K (LK020000) SM060000	[(LK010000) SM110000	k (SM110000) LII10000	{ (LII10000) LO610000	í (NF010000) SF250000	ø (SF260000) SF250000	½ (SF270000) SF260000	½ (SF280000) SF270000	½ (SF290000) SF280000	½ (SF290000) SF280000	º (SD440000) NF010000	
-C	♀ (SM290000) SA420000	,	<	L (LL020000) SM070000	\ (LL010000) SM130000	l (LII10000) LII10000	| (LII10000) SC020000	î (NF040000) SF260000	î (SF270000) SF260000	£ (SF280000) SF270000	£ (SF290000) SF280000	£ (SF300000) SF290000	£ (SF310000) SF300000	³ (LY110000) NF010000		
-D	♪ (SM930000) SM780000	↔ (SP100000) SA040000	-	=	M (LM020000) SM080000	] (LM010000) SM140000	m (LII10000) LII10000	} (LO620000) SC030000	ì (SP030000) SC040000	ø (SC040000) SC030000	ø (SC050000) SC040000	ø (SC060000) SC050000	ø (SC070000) SC060000	ø (SC080000) SC070000	² (ND021000) NF010000
-E	♪ (SM910000) SM600000	.	>	N	^ (SD150000) LNB010000	~ (SD160000) LA180000	n (LA180000) SA070000	~ (SA070000) SP170000	ä (SP170000) SC050000	× (SC050000) SF440000	× (SF450000) SF440000	× (SF460000) SF450000	× (SF470000) SF460000	— (SF480000) SF470000	— (SF490000) SF480000	
-F	☀ (SM690000) SV040000	▼ (SP120000) SP150000	/	?	O (L0020000) SP090000	o (L0010000) SM790000	◊ (LA280000) SC070000	å (SC070000) SP180000	f (SP180000) SF030000	f (SC010000) SC010000	f (SP600000) SF030000	f (SP600000) SF030000	f (SP600000) SF030000	f (SP600000) SF030000	(RSP) SP300000	

Figure 7.Multilingual(CP850)

Old Greek

Code Page 00851

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0 SM590000 SP010000 ND100000 SM050000 LP020000 SD130000 LP010000 LC420000 GI120000 GI170000 SF140000 SF020000 GT020000 GZ010000 SP320000 (SHY)	► (SP) SM590000 SP010000 ND100000 SM050000 LP020000 SD130000 LP010000 LC420000 GI120000 GI170000 SF140000 SF020000 GT020000 GZ010000 SP320000	0 @ (P) SM590000 SP010000 ND100000 SM050000 LP020000 SD130000 LP010000 LC420000 GI120000 GI170000 SF140000 SF020000 GT020000 GZ010000 SP320000														
-1 SS000000 SM630000 SP020000 ND010000 LA020000 LQ020000 LA010000 LQ010000 LU170000 GI1730000 SF150000 SF070000 GU020000 GE310000 SA020000	☺ ! 1 A Q a q ü (A) SS000000 SM630000 SP020000 ND010000 LA020000 LQ020000 LA010000 LQ010000 LU170000 GI1730000 SF150000 SF070000 GU020000 GE310000 SA020000															
-2 SS010000 SM760000 SP040000 ND020000 LB020000 LR020000 LB010000 LR010000 LE110000 GO120000 GO110000 SF160000 SF080000 GP020000 CT610000 GU010000	☻ " 2 B R b r é 'O ó (B) SS010000 SM760000 SP040000 ND020000 LB020000 LR020000 LB010000 LR010000 LE110000 GO120000 GO110000 SF160000 SF080000 GP020000 CT610000 GU010000															
-3 SS020000 SP330000 SM030000 ND030000 LC020000 LS020000 LC010000 LS010000 LA150000 LO150000 GU110000 SF110000 SF080000 GH020000 GJ010000 GF010000	♥ !! # 3 C S c s á ô ó (C) SS020000 SP330000 SM030000 ND030000 LC020000 LS020000 LC010000 LS010000 LA150000 LO150000 GU110000 SF110000 SF080000 GH020000 GJ010000 GF010000															
-4 SS030000 SM250000 SC030000 ND040000 LD020000 LT020000 LD010000 LT010000 LA170000 LO170000 GA020000 SF090000 SF100000 GP620000 GK010000 GH010000	♦ ¶ \$ 4 D T d t ä ö Á (D) SS030000 SM250000 SC030000 ND040000 LD020000 LT020000 LD010000 LT010000 LA170000 LO170000 GA020000 SF090000 SF100000 GP620000 GK010000 GH010000															
-5 SS040000 SM240000 SM020000 ND050000 LB020000 LU020000 LB010000 LU010000 LA130000 GU120000 GB020000 GK020000 SF050000 GO320000 GL010000 SM240000	♣ % 5 E U e u à 'Y B K (E) SS040000 SM240000 SM020000 ND050000 LB020000 LU020000 LB010000 LU010000 LA130000 GU120000 GB020000 GK020000 SF050000 GO320000 GL010000 SM240000															
-6 SS050000 SM700000 SM030000 ND060000 LF020000 LV020000 LF010000 LV010000 GA120000 LU150000 GG020000 GL020000 GP020000 GA010000 GM010000 GP610000	♠ - & 6 F V f v 'A ú Γ Á (F) SS050000 SM700000 SM030000 ND060000 LF020000 LV020000 LF010000 LV010000 GA120000 LU150000 GG020000 GL020000 GP020000 GA010000 GM010000 GP610000															
-7 SM570000 SM770000 SP050000 ND070000 LG020000 LW020000 LG010000 LW010000 LC410000 LU130000 GD020000 GM020000 GR020000 GB010000 GN010000 SD410000	● ↑ ' 7 G W g w ç ù Δ M P β v (G) SM570000 SM770000 SP050000 ND070000 LG020000 LW020000 LG010000 LW010000 LC410000 LU130000 GD020000 GM020000 GR020000 GB010000 GN010000 SD410000															
-8 SM570001 SM320000 SP040000 ND080000 LH020000 LX020000 LH010000 LX010000 LE150000 GO720000 GB020000 GN120000 SF380000 GG010000 GX010000 SM190000	■ ↑ (8 H X h x ê Ω E N (H) SM570001 SM320000 SP040000 ND080000 LH020000 LX020000 LH010000 LX010000 LE150000 GO720000 GB020000 GN120000 SF380000 GG010000 GX010000 SM190000															
-9 SM750000 SM330000 SP070000 ND090000 LI020000 LY020000 LI010000 LY010000 LE170000 LO180000 GZ020000 SF230000 SF990000 SF040000 GO010000 SD170000	○ ↓) 9 I Y i y ë Ö Z (I) SM750000 SM330000 SP070000 ND090000 LI020000 LY020000 LI010000 LY010000 LE170000 LO180000 GZ020000 SF230000 SF990000 SF040000 GO010000 SD170000															
-A SM750002 SM310000 SM040000 SP130000 LJ020000 LZ020000 LJ010000 LZ010000 LE130000 LU180000 GE320000 SF240000 SF40000 SF010000 GP010000 GO310000	● → * : J Z j z è Ü H (J) SM750002 SM310000 SM040000 SP130000 LJ020000 LZ020000 LJ010000 LZ010000 LE130000 LU180000 GE320000 SF240000 SF40000 SF010000 GP010000 GO310000															
-B SM280000 SM300000 SA010000 SP140000 LK020000 SM060000 LK010000 SM110000 LJ170000 GA110000 NP010000 SF250000 SF410000 SF610000 GR010000 GU170000	♂ ← + ; K [k { ï á ½ ρ ù (K) SM280000 SM300000 SA010000 SP140000 LK020000 SM060000 LK010000 SM110000 LJ170000 GA110000 NP010000 SF250000 SF410000 SF610000 GR010000 GU170000															
-C SM290000 SA420000 SP080000 SA030000 LL020000 SM070000 LL010000 SM130000 LJ150000 SCI00000 GT620000 SF260000 SF420000 SF570000 GS010000 GU730000	♀ L , < L \ l | î £ Θ (L) SM290000 SA420000 SP080000 SA030000 LL020000 SM070000 LL010000 SM130000 LJ150000 SCI00000 GT620000 SF260000 SF420000 SF570000 GS010000 GU730000															
-D SM930000 SM780000 SP100000 SA040000 LM020000 SM080000 LM010000 SM140000 GE120000 GE110000 G1020000 GX020000 SF430000 GD010000 GS610000 GO710000	Ϛ ↔ - = M J m } 'E é I Σ (M) SM930000 SM780000 SP100000 SA040000 LM020000 SM080000 LM010000 SM140000 GE120000 GE110000 G1020000 GX020000 SF430000 GD010000 GS610000 GO710000															
-E SM910000 SM600000 SP110000 SA050000 LN020000 SD150000 LN010000 SD190000 LA180000 GE710000 SP170000 GO020000 SF440000 GE010000 GT010000 SM470000	Ϛ ▲ . > N ^ n ~ Ä ñ « O (N) SM910000 SM600000 SP110000 SA050000 LN020000 SD150000 LN010000 SD190000 LA180000 GE710000 SP170000 GO020000 SF440000 GE010000 GT010000 SM470000															
-F SM690000 SV040000 SP120000 SP150000 LO020000 SP090000 LO010000 SM790000 GE720000 GI110000 SPI80000 SF030000 GS020000 SF600000 SD110000 SP300000 (RSP)	Ϛ ▽ / ? O o ◇ 'H ī » Σ (O) SM690000 SV040000 SP120000 SP150000 LO020000 SP090000 LO010000 SM790000 GE720000 GI110000 SPI80000 SF030000 GS020000 SF600000 SD110000 SP300000 (RSP)															

Figure 8.Old Greek(CP851)

Latin 2/ROECE**Code Page 00852**

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0	► (SP) SM590000	0 @ SP010000	ND100000 SM050000	P LP020000	' SD130000	p LP010000	Ç LC420000	É LE120000	á LA110000	SF140000 SF140000	ł SF020000 SF020000	đ LD610000 LD610000	Ó LO120000 SP320000	(SHY)		
-1	☺ ► ! SS000000 SM630000	1 A SP020000 ND010000 LA020000	Q LQ020000	a LA010000	q LQ010000	ü LU170000	Ł LL120000	í LL110000	SF150000 SF150000	ł SF070000 SF070000	đ LD620000 LD620000	Ó LS610000 SD250000	"			
-2	☻ ↑ " 2 B SS010000 SM760000	R SP040000 ND230000 LB020000	b LR020000	r LB010000	é LR010000	í LE110000	ó LL110000	ó LO110000	SF160000 SF160000	ł SF060000 SF060000	đ LD220000 LD220000	Ó LO160000 SD430000	ł			
-3	♥ !! # 3 C SS020000 SP330000 SM010000	S ND030000 LC020000	c LS020000	s LCD010000	â LS010000	ô LA150000	ú LU100000	ú LU100000	SF110000 SF110000	ł SF080000 SF080000	đ LE180000 LE180000	Ó LN120000 SD210000	ˇ			
-4	♦ ¶ \$ 4 D SS030000 SM250000 SC030000	T ND040000 LD020000	d LT020000	t LD010000	ä LT010000	ö LA170000	å LO170000	å LA440000	ł SF090000 SF090000	đ SF100000 SF100000	ń LD210000 LD210000	ń LN110000 SD230000	~			
-5	♣ § % 5 E SS040000 SM240000 SM020000	U ND050000 LE020000	e LU020000	u LB010000	ú LU010000	Ł LU270000	ą LL220000	Á LA430000	Á LA120000 SF050000	Ń LN220000 LN220000	Ń LN210000 LN210000	Ń SM240000 SM240000	§			
-6	♠ - & 6 F SS050000 SM700000 SM030000	V ND060000 LF020000	f LV020000	v LF010000	ć LV010000	Ć LL210000	Ć LZ220000	Ž LA160000	Ž LA240000 SF120000	Ā LZ210000 LA230000	Ā LZ120000 LA230000	Ā LS220000 LA230000	Š SA060000 SA060000	÷		
-7	● ↑ ' 7 G SMS700000 SM770000	W ND070000 LG020000	g LW020000	w LG010000	w LW010000	Š LC410000	Š LS120000	Ź LZ210000	Ź LE220000 LA230000	Ź LZ120000 LA230000	Ź LS210000 LA230000	Ź SD410000 LA230000	,			
-8	■ ↑ (8 H SM570001 SM320000	X ND080000 LH020000	h LX020000	x LH010000	x LX010000	ſ LL610000	ſ LS110000	ſ LB440000	ſ LS420000 SF380000	ſ LE210000 LE210000	ſ LR120000 LE210000	ſ SM190000 LA230000	ſ	ſ	ſ	
-9	○ ↓) 9 I SM750000 SM330000	Y ND090000 LJ020000	i LY020000	y LJ010000	y LY010000	ŕ LE170000	ŕ LO180000	ŕ LB430000	ŕ SF230000 SF390000	ŕ SF390000 SF390000	ŕ SF040000 SF040000	ŕ LU120000 LU120000	ŕ SD170000 SD170000	ŕ	ŕ	
-A	○ → * : J SM750002 SM310000	Z ND040000 LJ020000	j LZ020000	z LJ010000	ŕ LZ010000	ŕ LO260000	ŕ LU180000	ŕ SF240000 SF400000	ŕ SF400000 SF400000	ŕ SF010000 SF010000	ŕ LR110000 LR110000	ŕ SD290000 SD290000	*	*	*	
-B	♂ ← + ; K SM280000 SM300000	← SA010000 SP140000	+ LK020000	; SM060000	K LK010000	{ SM110000	ŕ LO250000	ŕ LT220000	ŕ LZ110000 SF250000	ŕ SF250000 SF410000	ŕ SF610000 SF610000	ŕ LU260000 LU260000	ŕ LU250000 LU260000	ŕ ū	ŕ ū	ŕ ū
-C	♀ ← , < L SM290000 SA420000	, SP080000	< SA030000	L LL020000	\ SM070000	| LL010000	| SM130000	| LL150000	| LT210000 SF260000	| SF260000 SF420000	| SF570000 SF570000	| LY110000 LY110000	| LR220000 LY110000	ř	ř	ř
-D	♂ ↔ - = M SM930000 SM780000	- SP100000	= SA040000	M LM020000	{ SM080000	} LM010000	} SM140000	} LZ120000	} LL620000 SF430000	} SF430000 SF430000	} LT420000 LT420000	} LY120000 LY120000	} LR210000 LY120000	ř	ř	ř
-E	♂ ▲ . > N SM910000 SM600000	. SP110000	> SA050000	N LN020000	^ SD150000	~ LN010000	} SD190000	× LA180000	× SA070000 SF440000	× SF440000 SF440000	× LU280000 LU280000	× LT410000 LU280000	× SM470000 LT410000	,	,	,
-F	♂ ☼ ▼ / ? O SM690000 SV040000	/ SP120000	? SP150000	O LO020000	— SM090000	o LO010000	△ SM790000	△ LC120000	△ LC210000 SF030000	△ SF030000 SF030000	△ SC010000 SF600000	△ SD110000 SF600000	△ (RSP) SP300000			

Figure 9.EasternEurope(CP852)

Latin 3 (PC)**Code Page 00853**

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0	► (SP) SM590000	0 @ SP010000	ND100000 SM050000	P LP020000	' SD130000	p LP010000	Ç LC420000	É LE120000	á LA110000	SF140000	└ SF020000		Ó LO120000	SHY SP320000		
-1	☺ SS000000	◀ SM630000	! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000	ü LU170000	ć LC290000	í LI110000	SF150000	└ SF070000		ß LS610000	
-2	☻ SS010000	↑ SM760000	" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000	é LE110000	Ć LC300000	ó LO110000	SF160000	└ SF060000	Ê LE160000	Ô LO160000	SM160000
-3	♥ SS020000	!! SP350000	# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000	â LA150000	ô LO150000	ú LU180000	SF110000	└ SF080000	Ë LE180000	Ô LO140000	’n LN630000
-4	♦ SS030000	¶ SM250000	\$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000	ä LA170000	ö LO170000	ñ LN190000	SF090000	└ SF100000	È LE140000	Ğ LG300000	SD230000
-5	♣ SS040000	§ SM240000	% SM020000	5 ND050000	E LE020000	U LU020000	e LB010000	u LU010000	à LA130000	ò LO130000	Ñ LN200000	Á LA120000	└ SF050000	ı LG610000	ğ LG280000	§ SM240000
-6	♠ SS050000	- SM700000	& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000	ć LC150000	û LU150000	Ğ LG240000	À LA160000	└ LS160000	Í LJ120000	µ SM170000	÷ SA060000
-7	● SM570000	↑ SM770000	' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000	ç LC410000	ù LU130000	Ł LG230000	À LA140000	└ LS150000	İ LJ160000	H LH620000	÷ SD410000
-8	■ SM570001	↑ SM320000	(SP060000	8 ND080000	H LJ020000	X LX020000	h LJ010000	x LX010000	ê LE150000	í LE130000	Ł LH160000	Ş LS420000	└ SF380000	İ LJ180000	h LH1610000	° SM190000
-9	○ SM750000	↓ SM330000	) SP070000	9 ND090000	I LJ020000	Y LY020000	i LJ010000	y LY010000	ë LE170000	Ö LO180000	Ł LH150000	Ş SF230000	└ SF390000	Ú SF040000	÷ LU120000	SD170000
-A	○ SM750002	→ SM310000	* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000	è LE130000	Ü LU180000	Ş SF240000	└ SF400000	Ö SF010000	÷ LU160000	÷ SD290000	*
-B	♂ SM280000	← SM300000	+ SA010000	; SP140000	K LK020000	M SM060000	k LK010000	{ SM110000	½ L1170000	LG150000	NP010000	└ SF250000	SF410000	SF610000	└ LU140000	÷ Ú
-C	♀ SM290000	, SA420000	< SP080000	SA030000	L LL020000	SM070000	L L010000	SM130000	ł LJ150000	ſ SC020000	LJ160000	SF260000	└ SF420000	SF570000	÷ LU240000	ND031000
-D	♪ SM930000	↔ SM780000	- SP100000	= SA040000	M LM020000	SM080000	m LM010000	{ SM140000	ì LJ130000	Ğ LG160000	§ L5410000	└ LZ300000	SF430000		ü LU230000	ND021000
-E	♪ SM910000	▲ SP110000	. SA050000	> LN020000	N SD150000	^ LN010000	n SD190000	~ LA180000	Ä SA070000	×	« SP170000	ż LZ290000	└ SF440000	ł LJ140000	÷ SD630000	SM470000
-F	☀ SM690000	▼ SP120000	/ SP150000	? LO020000	O SP090000	o LO010000	◊ SM790000	Ĉ LC160000	ŷ LJ150000	» SP180000	└ SF030000	○ SC010000	SF600000	÷ SD110000	(RSP) SP300000	

Figure 10.Turkish(CP853)

Cyrillic (PC)

Code Page 00855

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0 SS050000	► SM590000	(SP) SP010000	0 ND100000	@ SM050000	P LP020000	' SD130000	p LP010000	ђ KD610000	љ KL410000	а KA010000	■ SF140000	□ SF020000	л KL010000	ј KA160000	я (SHY) SP320000	
-1 SS060000	☺ SM630000	◀ SP020000	! ND010000	1 LA020000	А LQ020000	q LA010000	҂ LQ010000	҃ KD620000	҄ KL420000	А KA020000	■ SF150000	□ SF070000	л KL020000	р KR010000	ы KY010000	
-2 SS010000	☻ SM760000	↑ SP040000	" ND020000	2 LB020000	Б LR020000	б LB010000	г LR010000	ѓ KG110000	њ KN110000	б KB010000	■ SF160000	□ SF060000	м KM010000	р KR020000	ы KY020000	
-3 SS020000	♥ SP330000	!! SM010000	# ND030000	3 LC020000	С LS020000	с LC010000	с LS010000	Ѓ KG120000	Њ KN120000	Б KB020000	■ SF110000	□ SF080000	м KM020000	с KS010000	з KZ010000	
-4 SS030000	♦ SM250000	¶ SC030000	\$ ND040000	4 LD020000	Д LT020000	т LD010000	т LT010000	ë KE170000	ћ KC110000	ц KC010000	■ SF090000	□ SF100000	н KN010000	с KS020000	з KZ020000	
-5 SS040000	♣ SM240000	§ SM020000	% ND050000	5 LB020000	Е LU020000	е LU010000	у LU010000	Ё KE180000	Ћ KC120000	Ц KC020000	х KH010000	■ SF050000	н KN020000	т KT010000	ш KS210000	
-6 SS050000	♠ SM700000	- SM030000	& ND060000	6 LF020000	В LV020000	f LF010000	v LV010000	€ KE150000	ќ KK110000	д KD010000	Х KH020000	к KK010000	о KO010000	т KT020000	ш KS220000	
-7 SM570000	• SM770000	↓ SP050000	' ND070000	7 LG020000	Г LW020000	g LG010000	w LW010000	€ KE160000	Ќ KK120000	Ђ KD020000	Д KJ010000	и KK020000	К KO020000	о KU010000	у KE130000	
-8 SM570001	█ SM320000	↑ SP060000	(ND080000	8 LH020000	Н LX020000	h LH010000	Х LX010000	ѕ KZ150000	ў KU230000	ј KE910000	и KJ020000	■ SF380000	□ KP010000	п KU020000	у KE140000	
-9 SM150000	○ SM330000	↓ SP070000	) ND090000	9 LJ020000	І LY020000	i LJ010000	у LY010000	Ѕ KZ160000	Ў KU340000	Е KE020000	■ SF230000	□ SF390000	ж SF040000	ш KZ210000	ш KS150000
-A SM475002	○ SM310000	→ SM040000	*	: SP130000	J LJ020000	z LJ010000	і LZ010000	ї KJ110000	ѹ KG210000	Փ KF010000	■ SF240000	□ SF400000	Ժ SF010000	Շ KZ220000	Շ KS160000	
-B SM280000	♂ SM300000	← SA010000	+	; SP140000	K LK020000	k SM060000	{ LK010000	I SM110000	҂ KG220000	Փ KF020000	■ SF250000	□ SF410000	Վ SF610000	Չ KV010000	Չ KC210000	
-C SM1290000	♀ SA420000	, SP080000	< SA030000	L LL020000	Л SM070000	\ LL010000	І SM130000	Ї KU150000	յ KG010000	Փ SF260000	□ SF420000	Վ SF570000	Չ KV020000	Վ KC220000		
-D SM4930000	⌚ SM780000	↔ SP100000	- SA040000	= LM020000	М SM080000	] LM010000	м SM140000	}ۿ KJ180000	Ю KU160000	Ր KG020000	й KJ110000	■ SF430000	□ KP020000	Պ KX110000	§ SM340000
-E SM4910000	♪ SM600000	> SP110000	.	> SA050000	Ն LN020000	^ SD150000	n LN010000	~ SD190000	՚ KJ010000	Յ KU210000	« SP170000	յ KJ120000	» SF440000	յ KA150000	յ KX120000	մ SM470000
-F SM690000	☀ SV040000	▼ SP120000	/	? SP150000	Օ L0020000	— SP090000	օ L0010000	◇ SM790000	յ KJ020000	Ժ KU220000	» SP180000	□ SF030000	» SC010000	№ SF600000	(RSP) SM000000	» SP300000

Figure 11.Cyrillic(CP855)

Latin 5-Turkey + euro**Code Page 00857**

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-																																																										
-0	► (SPJ SM590000) SP010000 ND100000 SM050000 LP020000 SD130000 LP010000 LC420000 LE120000 LA110000 SF140000 SF020000 SM200000 LO120000 SP320000 (SHY)	0 (@ SM630000) SP020000 ND010000 LA020000 LQ020000 LA010000 LU170000 LA510000 LI110000 SF150000 SF070000 SM210000 LS610000 SA020000	!	1 A SM030000 SP030000 ND030000 LC020000 LS020000 LC010000 LS010000 LA150000 LO150000 LU110000 SF110000 SF080000 LE180000 LO140000 NF050000	Q SM040000 SP040000 ND040000 LB020000 LR020000 LB010000 LR010000 LE110000 LA520000 LO110000 SF160000 SF060000 LE160000 LO160000	a SM050000 SP050000 ND050000 LC030000 LS030000 LC020000 LS020000 LA160000 LO160000 LU120000 SF120000 SF090000 LE140000 LO190000 SM250000	ç SM060000 SP060000 ND060000 LB030000 LR030000 LB020000 LR020000 LE120000 LA170000 LO170000 LN190000 SF090000 SF100000 LE140000 LO190000 SM250000	é SM070000 SP070000 ND070000 LG020000 LW020000 LG010000 LW010000 LC410000 LU130000 LI300000 LG230000 LA140000 LA200000 LI160000 SD410000	á SM080000 SP080000 ND080000 LG030000 LW030000 LG020000 LW020000 LU010000 LA130000 LO130000 LN200000 LA120000 SF050000 SC200000 LO200000 SM240000	ü SM090000 SP090000 ND090000 LG040000 LW040000 LG030000 LW030000 LU020000 LA140000 LO140000 LG240000 LA160000 LA190000 LI120000 SM170000 SA060000	æ SM100000 SP100000 ND100000 LG050000 LW050000 LG040000 LW040000 LU030000 LA150000 LO150000 LG250000 LA170000 LA210000 LI130000 SD420000	í SM110000 SP110000 ND110000 LG060000 LW060000 LG050000 LW050000 LU040000 LA160000 LO160000 LG260000 LA180000 LA220000 LI140000 SD430000	ñ SM120000 SP120000 ND120000 LG070000 LW070000 LG060000 LW060000 LU050000 LA170000 LO170000 LG270000 LA190000 LA230000 LI150000 SD440000	ö SM130000 SP130000 ND130000 LG080000 LW080000 LG070000 LW070000 LU060000 LA180000 LO180000 LG280000 LA200000 LA240000 LI160000 SD450000	€ SM140000 SP140000 ND140000 LG090000 LW090000 LG080000 LW080000 LU070000 LA190000 LO190000 LG290000 LA210000 LA250000 LI170000 SD460000	ö SM150000 SP150000 ND150000 LG100000 LW100000 LG090000 LW090000 LU080000 LA200000 LO200000 LG300000 LA220000 LA260000 LI180000 SD470000	÷ SM160000 SP160000 ND160000 LG110000 LW110000 LG100000 LW100000 LU090000 LA210000 LO210000 LG310000 LA230000 LA270000 LI190000 SD480000	÷ SM170000 SP170000 ND170000 LG120000 LW120000 LG110000 LW110000 LU100000 LA220000 LO220000 LG320000 LA240000 LA280000 LI200000 SD490000	÷ SM180000 SP180000 ND180000 LG130000 LW130000 LG120000 LW120000 LU110000 LA230000 LO230000 LG330000 LA250000 LA290000 LI210000 SD500000	÷ SM190000 SP190000 ND190000 LG140000 LW140000 LG130000 LW130000 LU120000 LA240000 LO240000 LG340000 LA260000 LA300000 LI220000 SD510000	÷ SM200000 SP200000 ND200000 LG150000 LW150000 LG140000 LW140000 LU130000 LA250000 LO250000 LG350000 LA270000 LA310000 LI230000 SD520000	÷ SM210000 SP210000 ND210000 LG160000 LW160000 LG150000 LW150000 LU140000 LA260000 LO260000 LG360000 LA280000 LA320000 LI240000 SD530000	÷ SM220000 SP220000 ND220000 LG170000 LW170000 LG160000 LW160000 LU150000 LA270000 LO270000 LG370000 LA290000 LA330000 LI250000 SD540000	÷ SM230000 SP230000 ND230000 LG180000 LW180000 LG170000 LW170000 LU160000 LA280000 LO280000 LG380000 LA300000 LA340000 LI260000 SD550000	÷ SM240000 SP240000 ND240000 LG190000 LW190000 LG180000 LW180000 LU170000 LA290000 LO290000 LG390000 LA310000 LA350000 LI270000 SD560000	÷ SM250000 SP250000 ND250000 LG200000 LW200000 LG190000 LW190000 LU180000 LA300000 LO300000 LG400000 LA320000 LA360000 LI280000 SD570000	÷ SM260000 SP260000 ND260000 LG210000 LW210000 LG200000 LW200000 LU190000 LA310000 LO310000 LG410000 LA330000 LA370000 LI290000 SD580000	÷ SM270000 SP270000 ND270000 LG220000 LW220000 LG210000 LW210000 LU200000 LA320000 LO320000 LG420000 LA340000 LA380000 LI300000 SD590000	÷ SM280000 SP280000 ND280000 LG230000 LW230000 LG220000 LW220000 LU210000 LA330000 LO330000 LG430000 LA350000 LA390000 LI310000 SD600000	÷ SM290000 SP290000 ND290000 LG240000 LW240000 LG230000 LW230000 LU220000 LA340000 LO340000 LG440000 LA360000 LA400000 LI320000 SD610000	÷ SM300000 SP300000 ND300000 LG250000 LW250000 LG240000 LW240000 LU230000 LA350000 LO350000 LG450000 LA370000 LA410000 LI330000 SD620000	÷ SM310000 SP310000 ND310000 LG260000 LW260000 LG250000 LW250000 LU240000 LA360000 LO360000 LG460000 LA380000 LA420000 LI340000 SD630000	÷ SM320000 SP320000 ND320000 LG270000 LW270000 LG260000 LW260000 LU250000 LA370000 LO370000 LG470000 LA390000 LA430000 LI350000 SD640000	÷ SM330000 SP330000 ND330000 LG280000 LW280000 LG270000 LW270000 LU260000 LA380000 LO380000 LG480000 LA400000 LA440000 LI360000 SD650000	÷ SM340000 SP340000 ND340000 LG290000 LW290000 LG280000 LW280000 LU270000 LA390000 LO390000 LG490000 LA410000 LA450000 LI370000 SD660000	÷ SM350000 SP350000 ND350000 LG300000 LW300000 LG290000 LW290000 LU280000 LA400000 LO400000 LG500000 LA420000 LA460000 LI380000 SD670000	÷ SM360000 SP360000 ND360000 LG310000 LW310000 LG300000 LW300000 LU290000 LA410000 LO410000 LG510000 LA430000 LA470000 LI390000 SD680000	÷ SM370000 SP370000 ND370000 LG320000 LW320000 LG310000 LW310000 LU300000 LA420000 LO420000 LG520000 LA440000 LA480000 LI400000 SD690000	÷ SM380000 SP380000 ND380000 LG330000 LW330000 LG320000 LW320000 LU310000 LA430000 LO430000 LG530000 LA450000 LA490000 LI410000 SD700000	÷ SM390000 SP390000 ND390000 LG340000 LW340000 LG330000 LW330000 LU320000 LA440000 LO440000 LG540000 LA460000 LA500000 LI420000 SD710000	÷ SM400000 SP400000 ND400000 LG350000 LW350000 LG340000 LW340000 LU330000 LA450000 LO450000 LG550000 LA470000 LA510000 LI430000 SD720000	÷ SM410000 SP410000 ND410000 LG360000 LW360000 LG350000 LW350000 LU340000 LA460000 LO460000 LG560000 LA480000 LA520000 LI440000 SD730000	÷ SM420000 SP420000 ND420000 LG370000 LW370000 LG360000 LW360000 LU350000 LA470000 LO470000 LG570000 LA490000 LA530000 LI450000 SD740000	÷ SM430000 SP430000 ND430000 LG380000 LW380000 LG370000 LW370000 LU360000 LA480000 LO480000 LG580000 LA500000 LA540000 LI460000 SD750000	÷ SM440000 SP440000 ND440000 LG390000 LW390000 LG380000 LW380000 LU370000 LA490000 LO490000 LG590000 LA510000 LA550000 LI470000 SD760000	÷ SM450000 SP450000 ND450000 LG400000 LW400000 LG390000 LW390000 LU380000 LA500000 LO500000 LG600000 LA520000 LA560000 LI480000 SD770000	÷ SM460000 SP460000 ND460000 LG410000 LW410000 LG400000 LW400000 LU390000 LA510000 LO510000 LG610000 LA530000 LA570000 LI490000 SD780000	÷ SM470000 SP470000 ND470000 LG420000 LW420000 LG410000 LW410000 LU400000 LA520000 LO520000 LG620000 LA540000 LA580000 LI500000 SD790000	÷ SM480000 SP480000 ND480000 LG430000 LW430000 LG420000 LW420000 LU410000 LA530000 LO530000 LG630000 LA550000 LA590000 LI510000 SD800000	÷ SM490000 SP490000 ND490000 LG440000 LW440000 LG430000 LW430000 LU420000 LA540000 LO540000 LG640000 LA560000 LA600000 LI520000 SD810000	÷ SM500000 SP500000 ND500000 LG450000 LW450000 LG440000 LW440000 LU430000 LA550000 LO550000 LG650000 LA570000 LA610000 LI530000 SD820000	÷ SM510000 SP510000 ND510000 LG460000 LW460000 LG450000 LW450000 LU440000 LA560000 LO560000 LG660000 LA580000 LA620000 LI540000 SD830000	÷ SM520000 SP520000 ND520000 LG470000 LW470000 LG460000 LW460000 LU450000 LA570000 LO570000 LG670000 LA590000 LA630000 LI550000 SD840000	÷ SM530000 SP530000 ND530000 LG480000 LW480000 LG470000 LW470000 LU460000 LA580000 LO580000 LG680000 LA600000 LA640000 LI560000 SD850000	÷ SM540000 SP540000 ND540000 LG490000 LW490000 LG480000 LW480000 LU470000 LA590000 LO590000 LG690000 LA610000 LA650000 LI570000 SD860000	÷ SM550000 SP550000 ND550000 LG500000 LW500000 LG490000 LW490000 LU480000 LA600000 LO600000 LG700000 LA620000 LA660000 LI580000 SD870000	÷ SM560000 SP560000 ND560000 LG510000 LW510000 LG500000 LW500000 LU490000 LA610000 LO610000 LG710000 LA630000 LA670000 LI590000 SD880000	÷ SM570000 SP570000 ND570000 LG520000 LW520000 LG510000 LW510000 LU500000 LA620000 LO620000 LG720000 LA640000 LA680000 LI600000 SD890000	÷ SM580000 SP580000 ND580000 LG530000 LW530000 LG520000 LW520000 LU510000 LA630000 LO630000 LG730000 LA650000 LA690000 LI610000 SD900000	÷ SM590000 SP590000 ND590000 LG540000 LW540000 LG530000 LW530000 LU520000 LA640000 LO640000 LG740000 LA660000 LA700000 LI620000 SD910000	÷ SM600000 SP600000 ND600000 LG550000 LW550000 LG540000 LW540000 LU530000 LA650000 LO650000 LG750000 LA670000 LA710000 LI630000 SD920000	÷ SM610000 SP610000 ND610000 LG560000 LW560000 LG550000 LW550000 LU540000 LA660000 LO660000 LG760000 LA680000 LA720000 LI640000 SD930000	÷ SM620000 SP620000 ND620000 LG570000 LW570000 LG560000 LW560000 LU550000 LA670000 LO670000 LG770000 LA690000 LA730000 LI650000 SD940000	÷ SM630000 SP630000 ND630000 LG580000 LW580000 LG570000 LW570000 LU560000 LA680000 LO680000 LG780000 LA700000 LA740000 LI660000 SD950000	÷ SM640000 SP640000 ND640000 LG590000 LW590000 LG580000 LW580000 LU570000 LA690000 LO690000 LG790000 LA710000 LA750000 LI670000 SD960000	÷ SM650000 SP650000 ND650000 LG600000 LW600000 LG590000 LW590000 LU580000 LA700000 LO700000 LG800000 LA720000 LA760000 LI680000 SD970000	÷ SM660000 SP660000 ND660000 LG610000 LW610000 LG600000 LW600000 LU590000 LA710000 LO710000 LG810000 LA730000 LA770000 LI690000 SD980000	÷ SM670000 SP670000 ND670000 LG620000 LW620000 LG610000 LW610000 LU600000 LA720000 LO720000 LG820000 LA740000 LA780000 LI700000 SD990000	÷ SM680000 SP680000 ND680000 LG630000 LW630000 LG620000 LW620000 LU610000 LA730000 LO730000 LG830000 LA750000 LA790000 LI710000 SD1000000	÷ SM690000 SP690000 ND690000 LG640000 LW640000 LG630000 LW630000 LU620000 LA740000 LO740000 LG840000 LA760000 LA800000 LI720000 SD1010000	÷ SM700000 SP700000 ND700000 LG650000 LW650000 LG640000 LW640000 LU630000 LA750000 LO750000 LG850000 LA770000 LA810000 LI730000 SD1020000	÷ SM710000 SP710000 ND710000 LG660000 LW660000 LG650000 LW650000 LU640000 LA760000 LO760000 LG860000 LA780000 LA820000 LI740000 SD1030000	÷ SM720000 SP720000 ND720000 LG670000 LW670000 LG660000 LW660000 LU650000 LA770000 LO770000 LG870000 LA790000 LA830000 LI750000 SD1040000	÷ SM730000 SP730000 ND730000 LG680000 LW680000 LG6700

PC Multilingual + euro**Code Page 00858**

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-	
-0	► (SP) SM590000 SP010000	0 ND100000 SM050000 LP020000	@ SD130000 LC420000 LE120000	P LP010000 LCQ10000 LU170000	' LCQ010000 LA510000	p LA110000 LA150000	ç LE100000 LA520000	é LA110000 LA150000	á LU110000 LU150000	í LU110000 LU150000	í SF140000 SF150000	í SF020000 SF070000	í LD630000 LD620000	í LO120000 LO160000	í SP320000 SA020000	í (SHY) SP320000	
-1	☺ SS000000 SM630000 SP020000	! ND010000 LA020000 LR020000	1 A Q NQ020000 LAQ10000 LUQ10000	2 B R LB020000 LR020000 LB010000	3 C S LC020000 LS020000 LC010000	4 D T LD020000 LT020000 LD010000	5 E U LE020000 LU020000 LE010000	6 F V LV020000 LF020000 LV010000	7 G W LG020000 LW020000 LG010000	8 H X LH020000 LX020000 LH010000	9 I Y LY020000 LI020000 LY010000	í y LE170000 LI130000 LY170000	ü LE160000 LI120000 LY160000	ü í SF080000 SF110000	ü LE180000 LI140000	ü LO140000 NP050000	ü (¾) NP050000
-2	☻ SS010000 SM760000 SP040000	↑ ND030000 NC030000 LC020000	" 2 B R NQ030000 LB020000 LR020000	é r LE010000 LR010000 LE110000	é é AE LA150000 LA520000	á LO110000 LO150000	ó LU110000 LU150000	ñ LN190000 LN200000	ñ LN170000 LA130000	ñ LN150000 LA170000	ñ LN190000 LN200000	ñ SF090000 SF100000	ñ LE140000 LE160000	ñ LO160000 LO190000	ñ SM100000 SM250000		
-3	♥ SS020000 SP330000	!! SM010000 ND010000	# ND030000 LC030000 LS030000	3 C S LC020000 LS020000 LC010000	4 D T LD020000 LT020000 LD010000	5 E U LE020000 LU020000 LE010000	6 F V LV020000 LF020000 LV010000	7 G W LG020000 LW020000 LG010000	8 H X LH020000 LX020000 LH010000	9 I Y LY020000 LI020000 LY010000	í s LA170000 LA130000 LI150000	ü SM210000 LA160000 LA180000	ü á SM120000 LA120000 LA100000	ü á SF050000 SC200000	ü á LO200000 SC200000	ü á SM240000 SM200000	
-4	♦ SS030000 SM250000	¶ SC030000 ND040000	\$ ND060000 LD020000	4 D T LT020000 LD010000	5 E U LD010000 LT010000	6 F V LT010000 LV010000	7 G W LU010000 LG010000	8 H X LX010000 LH010000	9 I Y LY010000 LI010000	í ö LE170000 LI130000 LY170000	ö LN190000 LN200000	ö LN190000 LN200000	ö SF080000 SF100000	ö LE140000 LE160000	ö LO160000 LO190000	ö SM250000 SM120000	
-5	♣ SS040000 SM240000	§ SM020000 ND050000	% ND020000 LE020000	5 E U LE020000 LU020000	6 F V LU010000 LG010000	7 G W LG010000 LW010000	8 H X LW010000 LG010000	9 I Y LG010000 LI010000	í à LA170000 LA130000 LI150000	à LN200000 LA120000 LA100000	à ñ LN200000 LA120000 LA100000	à á SM210000 LA160000 LA180000	à á SF050000 SC200000	à á LO200000 SC200000	à á SM240000 SM200000		
-6	♠ SS050000 SM700000	= SM030000 ND060000	& ND080000 LF020000	6 F V LV020000 LF010000	7 G W LG020000 LW010000	8 H X LX010000 LG010000	9 I Y LY010000 LI010000	í à LA270000 LA250000 LI150000	à ü SM210000 LA160000 LA180000	à ü SM210000 LA160000 LA180000	à ü SM210000 LA160000 LA180000	à ü SF080000 SF100000	à ü LE120000 LI120000	à ü LO120000 SM170000	à ü SA060000 SA060000		
-7	● SM570000 SM770000	↑ ND070000 SP050000	' ND010000 LG020000	7 G W LG020000 LW020000	8 H X LH020000 LX020000	9 I Y LY020000 LI020000	í à LG010000 LW010000 LG010000	à ü LC410000 LU130000 LI150000	ü SM200000 LA140000 LI150000	ü à LA140000 LA200000 LI160000	ü à SM200000 LA140000 LA200000	ü à SF080000 SF100000	ü à LT630000 LI160000	ü à SD410000 LT630000	ü à SM170000 SD410000		
-8	█ SM570001 SM320000	↑ SM060000 ND080000	(ND020000 LH020000	8 H X LX020000 LH010000	9 I Y LY020000 LI020000	í è LE170000 LI130000 LY170000	ÿ SP160000 SM520000	í è SP160000 SM520000	ÿ í SF380000 SF380000	ÿ í LT180000 LI180000	ÿ í SF380000 SF380000	ÿ í LT640000 LI180000	ÿ í SM190000 SM190000	ÿ í o SM190000 SM190000			
-9	○ SM750000 SM330000	↓ SM070000 SP070000	) ND090000 LI020000	9 I Y LY020000 LI020000	í y LY010000 LI010000 LY010000	ë LE170000 LI130000 LY170000	ö SM530000 SF230000	ö SM530000 SF230000	ö í SF390000 SF390000	ö í SF040000 SF040000	ö í LU120000 LU120000	ö í SF040000 SF040000	ö í SD170000 LU120000	ö í " SM170000 SD170000		
-A	Ⓐ SM750002 SM310000	→ SM040000 SP130000	* LJ020000 LJ020000	: J Z LJ020000 LJ010000	; J Z LJ020000 LJ010000	í z LE130000 LI130000 LI150000	è LU180000 LU180000 LU180000	ë SM660000 SF240000	ë SM660000 SF240000	ë í SF400000 SF400000	ë í SF010000 SF010000	ë í LU160000 LU160000	ë í SF010000 LU160000	ë í SD630000 SD630000			
-B	♂ SM280000 SM300000	← SM010000 SA010000	+ SP140000 LK020000	;	K LK020000 SM060000	{ lk SM110000 LI170000	í è LI170000 LI170000 LI150000	ø LO610000 NF010000	ø SMF610000 SF250000	ø í SF410000 SF410000	ø í SF610000 SF410000	ø í LU140000 LU140000	ø í ND011000 ND011000	ø í 1 ND011000 ND011000			
-C	♀ SM290000 SA420000	, SP080000 SA030000	< LL020000 SM070000	L L L010000 SM130000	\ L L L010000 SM130000	í î LI150000 SC020000	£ NF040000 SF260000	í î NF040000 SF260000	í î SF420000 SF420000	í î SF570000 SF570000	í î LY110000 LY110000	í î SM031000 ND031000	í î 3 ND031000 ND031000				
-D	♪ SM930000 SM780000	↔ SM100000 SP100000	- SA040000 LM020000	= M SM080000 LM010000	] m SM140000 LI130000	) ~ LI130000 LA020000	í ø LO620000 SP030000	í ø SC040000 SF430000	í ø SMF650000 SF430000	í ø LY120000 LY120000	í ø SM021000 ND021000	í ø SM021000 ND021000	í ø 2 ND021000 ND021000			
-E	♪ SM910000 SM600000	▲ SP110000 SA050000	. LN020000 SD150000	> N SD190000 LA180000	^ n SA070000 LA180000	~ Å SP170000 SC070000	ä SP170000 SC070000	ä SP170000 SC050000	ä SF440000 SF440000	ä í LU140000 LI140000	ä í SM150000 SM150000	ä í SM150000 SM150000	ä í SM470000 SM470000				
-F	☀ SM690000 SV040000	▼ SP120000 SP150000	/ LO020000 LO010000	? O SP090000 SM790000	o LA280000 SM790000	◊ Å SP180000 SC070000	f SP180000 SF030000	f SP180000 SC010000	f SF600000 SF600000	f í SD110000 SP300000	f í SP300000 SD110000	f í ' SP300000 SP300000	f í (RSF) SP300000 SP300000				

Figure 13.EuroPCM Multilingual(CP858).

Portuguese

Code Page 00860

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0		► (SP) SM590000	0 ND100000 SP010000	@ SM050000 LP020000	P SD130000 LP010000	` LC420000 LE120000	p LA110000 SF140000	ç LA110000 SF020000	é LA110000 SF460000	á GA010000 SA480000						
-1	☺ SS000000	◀ SM630000	! SP020000	1 ND010000 LA020000	A LQ020000 LA010000	Q LQ010000 LU170000	a LU170000 LA140000	q LA110000 SF150000	ü LA110000 SF070000	à LA110000 SF470000	í LS610000 SA020000					
-2	☻ SS010000	↑ SM760000	" SP040000	2 ND020000 LB020000	B LR020000 LB010000	R LC010000 LC010000	b LR010000 LE110000	r LE110000 LE140000	é LO110000 SF160000	è LO110000 SF060000	ó SF480000 SF480000			Γ GC020000	≥ SA530000	
-3	♥ SS020000	!! SP330000	# SM010000	3 ND030000 LC020000	C LS020000 LC010000	S LS010000 LA150000	c LS010000 LO150000	s LA150000 LU110000	â LU110000 SF110000	ô LU110000 SF080000	ú SF490000 SF490000			π GP010000	≤ SA520000	
-4	♦ SS030000	¶ SM250000	\$ ND040000 LD020000	4 LD020000 LT020000	D LD010000 LT010000	T LD010000 LA190000	d LT010000 LO190000	t LA190000 LN190000	ã LN190000 SF090000	õ LN190000 SF100000	ñ SF100000 SF100000			Σ GS010000	ƒ SS260000	
-5	♣ SS040000	§ SM240000	% SM020000	5 ND050000 LE020000	E LU020000 LE010000	U LU010000 LU010000	e LU010000 LA130000	u LA130000 LO130000	à LN200000 SF140000	ò LN200000 SF050000	ñ SF510000 SF510000			σ GS010000	J SS270000	
-6	♠ SS050000	- SM700000	& SM030000	6 ND060000 LF020000	F LV020000 LF010000	V LV010000 LA120000	f LV010000 LU120000	v LA120000 LU120000	á SM210000 SF280000	ú SM210000 SF360000	ä SF360000 SF520000			μ GM010000	÷ SA060000	
-7	• SM570000	↓ SM770000	' SP050000	7 ND070000 LG020000	G LW020000 LG010000	W LW010000 LC410000	g LW010000 LU130000	w LC410000 LU130000	ç SM200000 SF210000	ù SM200000 SF370000	ø SF370000 SF530000			τ GT010000	≈ SA700000	
-8	█ SM570001	↑ SM320000	(SP060000	8 ND080000 LH020000	H LX020000 LH010000	X LX010000 LX010000	h LX010000 LI140000	x LI140000 SP160000	ê LI140000 SF220000	í SP160000 SF380000	è SF380000 SF540000			Φ GF020000	° SM190000	
-9	○ SM750000	↓ SM330000	) SP070000	9 ND090000 LJ020000	I LY020000 LY010000	Y LY010000 LY010000	i LY010000 LE160000	y LE160000 LO200000	ê LO200000 LO140000	ö SF230000 SF390000	ø SF390000 SF400000			Θ GT620000	*
-A	Ⓐ SM750002	→ SM310000	* SM040000	: SP130000	J LJ020000 LJ010000	Z LZ020000 LZ010000	j LZ010000 LE130000	z LE130000 LU180000	è LU180000 SM660000	ü SM660000 SF240000	ñ SF240000 SF400000			Ω GO320000	*	
-B	♂ SM280000	← SM300000	+ SA010000	;	K SP140000 LK020000	[SM060000 LK010000	k SM110000 LJ120000	{ LJ120000 SC040000	í SC040000 NF010000	ç NF010000 SF250000	½ SF410000 SF410000			δ SF610000	✓ GD010000	
-C	♀ SM290000	∟ SA420000	, SP080000	< SA030000	L LL020000 SM070000	\ LL010000 SM130000	| LO160000 LO160000	— SCI0000 NP040000	ö NP040000 SF240000	£ SF240000 SF420000			∞ SF570000	n SA450000		
-D	♪ SM930000	↔ SM780000	- SP100000	= SA040000	M LM020000 SM080000	] LM010000 SM140000	m LM010000 LJ130000	} LJ130000 LU140000	ì LU140000 SP030000	û SP030000 SF270000	ñ SF430000 SF430000			ϕ SF580000	² GF010001
-E	♪ SM910000	▲ SM660000	. SP110000	> SA050000	N LN020000 SD150000	^ LN010000 SD190000	n LN010000 LA200000	~ LA200000 SC060000	ä SP170000 SF280000	pts SF140000 SF440000			ε SF590000	SM470000		
-F	☀ SM690000	▼ SY040000	/ SP120000	? SP150000	O LO020000 SP090000	— LO010000 SM790000	o LO010000 LA160000	◊ LA160000 LO120000	â LO120000 SP180000	ó SP180000 SF030000	ó SF450000 SF600000			□ SA380000	(RSP) SP300000	

Figure 14.Portugal(CP860)

Hebrew

Code Page 00862

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-	
-0		► (SP) SM590000	0 SP010000 ND100000 SM050000	@ LP020000 SD130000	P LP010000 HEX330000	` LP010000 HN010000	N LA110000 LA110000	I LA110000 SF140000	á SF020000 SF460000	á SF020000 SF460000	á GA010000 SA480000	α GA010000 SA480000	≡				
-1	☺ SS000000	◀ SM630000	! SP020000 ND010000 LA020000	1 A LQ020000 LA010000 LQ010000	Q a LR020000 LR010000 LB010000	q LB010000 HC010000	ב HS010000 LJ110000	ד LJ110000 SF150000	ְ SF070000 SF470000	ְ SF070000 SF470000	ְ LS610000 SA120000	ְ LS610000 SA120000	ְ	ְ	ְ	ְ	
-2	☻ SS010000	↑ SM760000	" SP040000 ND020000 LB020000	2 B LR020000 LR010000 LB010000	R b LR010000 LC010000 LC010000	r LC010000 HD010000	ג HD010000 HX350000	֣ LO110000 LU110000	֣ SF160000 SF080000	֣ SF080000 SF480000	֣ CG020000 SA530000	֣ CG020000 SA530000	֣	֣	֣	֣	
-3	♥ SS020000	!! SP330000	# SM010000 ND030000 LC020000	3 C LS020000 LC010000 LS010000	S c LS010000 LS010000	s LS010000 HD610000	ת HD610000 HP610000	֤ LU110000 LU110000	֤ SF110000 SF080000	֤ SF080000 SF490000	֤ GP010000 SA520000	֤ GP010000 SA520000	֤	֤	֤	֤	
-4	♦ SS030000	¶ SM250000	\$ SC030000 ND040000 LD020000	4 D LT020000 LD010000 LF020000	T d LT010000 LF010000	t LT010000 HH010000	ה HH010000 HP010000	֩ LN190000 LN190000	֩ SF090000 SF190000	֩ SF190000 SF050000	֩ SF050000 SF510000	֩ GS010000 SS270000	֩ GS010000 SS270000	֩	֩	֩	֩
-5	♣ SS040000	§ SM240000	% SM020000 ND050000 LE020000	5 E LU020000 LU010000 LE010000	U e LU010000 LU010000 LE010000	u LU010000 HW010000	ׁ HW010000 HS610000	ׁ LN200000 LN200000	ׁ SF190000 SF190000	ׁ SF190000 SF050000	ׁ SF050000 SF510000	ׁ GS010000 SS270000	ׁ GS010000 SS270000	ׁ	ׁ	ׁ	ׁ
-6	♠ SS050000	- SM700000	& SM030000 ND060000 LF020000	6 F LV020000 LF010000	V f LV010000 LV010000	v LV010000 H2010000	ׂ H2010000 HS450000	ׂ SM210000 SM210000	ׂ SF280000 SF360000	ׂ SF360000 SF520000	ׂ GM010000 SA060000	ׂ GM010000 SA060000	ׂ	ׂ	ׂ	ׂ	
-7	• SM570000	↓ SM770000	' SP050000 ND070000 LG020000	7 G LW020000 LG010000	W g LW010000 LG010000	w LW010000 HH450000	ׁ HH450000 HQ610000	ׁ SM200000 SM200000	ׁ SF210000 SF370000	ׁ SF370000 SF530000	ׁ SF530000 GT010000	ׁ SF530000 SA700000	ׁ τ GT010000 SA700000	ׁ τ	ׁ	ׁ	ׁ
-8	█ SM570001	↑ SM320000	(SP060000 ND080000 LH020000	8 H LX020000 LH010000	X h LX010000 LH010000	x LX010000 HT450000	ׁ HT450000 HR010000	ׁ SP160000 SP160000	ׁ SF220000 SF380000	ׁ SF380000 SF540000	ׁ SF540000 GP020000	ׁ SF540000 SM190000	ׁ Φ GP020000 SM190000	ׁ Φ	ׁ	ׁ	ׁ
-9	○ SM750000	↓ SM330000	) SP070000 ND090000 LJ020000	9 I LY020000 LY010000	Y i LY010000 LY010000	y LY010000 HY010000	ׁ HY010000 HS210000	ׁ SM680000 SM680000	ׁ SF230000 SF390000	ׁ SF390000 SF490000	ׁ SF490000 GT620000	ׁ SF490000 SA790000	ׁ Θ GT620000 SA790000	ׁ Θ *	ׁ *	ׁ	ׁ
-A	○ SM750002	→ SM310000	* SM040000 SP130000 LJ020000	: J LZ020000 LJ010000	Z j LZ010000 LJ010000	ׁ Z LJ010000 HK610000	ׁ HK610000 HT010000	ׁ SM660000 SM660000	ׁ SF240000 SF400000	ׁ SF400000 SF010000	ׁ SF010000 GO320000	ׁ SF010000 SD630000	ׁ Ω GO320000 SD630000	ׁ Ω *	ׁ *	ׁ	ׁ
-B	♂ SM280000	← SM300000	+ SA010000 SP140000 LK020000	; K SM060000 LK010000	[k SM010000 LK010000	{ SM110000 SM110000	ׁ { HK010000 SC040000	ׁ HK010000 NP010000	ׁ SF250000 SF410000	ׁ SF410000 SF610000	ׁ SF610000 GD010000	ׁ SF610000 SA800000	ׁ δ GD010000 SA800000	ׁ δ ✓	ׁ ✓	ׁ	ׁ
-C	♀ SM290000	„ SA420000	, SA030000 LL020000	< L SM070000 SM070000	\ LL010000 SM130000	ׁ \ LL010000 HL010000	ׁ HL010000 SC020000	ׁ NP040000 NP040000	ׁ SF260000 SF420000	ׁ SF420000 SF570000	ׁ SF570000 SA450000	ׁ SF570000 LN011000	ׁ ∞ SA450000 LN011000	ׁ ∞	ׁ	ׁ	ׁ
-D	♪ SM930000	↔ SM780000	- SP100000 SA040000 LM020000	= M SM080000 SM080000	] m SM010000 LM010000	ׁ } SM140000 SM140000	ׁ EM610000 SC050000	ׁ SC050000 SP030000	ׁ SF270000 SF430000	ׁ SF430000 SF580000	ׁ SF580000 GF010001	ׁ SF580000 ND021000	ׁ ϕ GF010001 ND021000	ׁ ϕ 2	ׁ 2	ׁ	ׁ
-E	♪ SM910000	▲ SM660000	. SP110000 SA050000 LN020000	> N SD150000 SD150000	ׁ ^ LN010000 SD190000	ׁ ~ LN010000 HN4610000	ׁ Pts SC060000 SC060000	ׁ SC060000 SP170000	ׁ SF280000 SF440000	ׁ SF440000 SF590000	ׁ SF590000 GE010000	ׁ SF590000 SM470000	ׁ ε GE010000 SM470000	ׁ ε ■	ׁ ■	ׁ	ׁ
-F	☀ SM690000	▼ SM040000	/ SP120000 SP150000 LO020000	? O SP090000 LO010000	ׁ o SM790000 SM790000	ׁ □ LO010000 HN4610000	ׁ f SC070000 SC070000	ׁ SP180000 SP180000	ׁ SF030000 SF450000	ׁ SF450000 SF600000	ׁ SF600000 SA380000	ׁ SA380000 SP300000	ׁ ○ SA380000 (RSP) SP300000	ׁ ○	ׁ (RSP)	ׁ	ׁ

Figure 15. Hebrew(CP862)

Canadian French

Code Page 00863

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-																			
-0 SM590000 SP010000 ND100000 SM050000 LP020000 SD130000 LP010000 LC420000 LE120000 SM650000 SF140000 SF020000 SF460000 GA010000 SA480000	► (SP) SM590000	0 @ ND100000 SM050000	P ` p Ç É ï LP020000 SD130000 LP010000 LC420000 LE120000 SM650000 SF140000 SF020000 SF460000 GA010000 SA480000	’ LP010000	Q a q ü È ‘ LQ020000 LA010000 LQ010000 LU170000 LE140000 SD110000 SF150000 SF070000 SF470000 LS610000 SA020000	‘ LQ020000	1 A Q a q ü È ‘ ND010000 LA020000 LQ020000 LA010000 LQ010000 LU170000 LE140000 SD110000 SF150000 SF070000 SF470000 LS610000 SA020000	2 B R b r é È ó SM760000 SP040000 ND020000 LB020000 LR020000 LB010000 LR010000 LE110000 LE160000 LO110000 SF160000 SF060000 SF480000 GG020000 SA530000	≥ SM760000 SP040000 ND020000 LB020000 LR020000 LB010000 LR010000 LE110000 LE160000 LO110000 SF160000 SF060000 SF480000 GG020000 SA530000	3 C S c s â ô ú SM010000 ND030000 LC020000 LS020000 LC010000 LS010000 LA150000 LO110000 LU110000 SF110000 SF080000 SP490000 GP010000 SA520000	≤ SM010000 ND030000 LC020000 LS020000 LC010000 LS010000 LA150000 LO110000 LU110000 SF110000 SF080000 SP490000 GP010000 SA520000	4 D T d t Â È “ SM250000 SC030000 ND040000 LD020000 LT020000 LD010000 LT010000 LA160000 LE180000 SD170000 SF090000 SF100000 SF500000 GS020000 SS260000	“ LD010000 LT010000 LA160000 LE180000 SD170000 SF090000 SF100000 SF500000 GS020000 SS260000	5 E U e u à ï SM020000 ND050000 LB020000 LU020000 LB010000 LU010000 LA130000 LJ180000 SD410000 SF190000 SF050000 SF510000 GS010000 SS270000	≈ SM020000 ND050000 LB020000 LU020000 LB010000 LU010000 LA130000 LJ180000 SD410000 SF190000 SF050000 SF510000 GS010000 SS270000	6 F V f v ¶ û ³ SM030000 ND060000 LF020000 LV020000 LF010000 LV010000 SM1250000 LU150000 ND031000 SF200000 SF360000 SF520000 GM010000 SA060000	÷ SM030000 ND060000 LF020000 LV020000 LF010000 LV010000 SM1250000 LU150000 ND031000 SF200000 SF360000 SF520000 GM010000 SA060000	7 G W g w ç ù - SM040000 ND070000 LG020000 LW020000 LG010000 LW010000 LC410000 LU130000 SM150000 SF210000 SF370000 SF530000 GT010000 SA700000	- LG020000 LW020000 LG010000 LW010000 LC410000 LU130000 SM150000 SF210000 SF370000 SF530000 GT010000 SA700000	8 H X h x ê ☒ ï SM050000 ND080000 LH020000 LX020000 LJ010000 LX010000 LE150000 SC010000 LJ160000 SF220000 SF380000 SF540000 GP020000 SM190000	° SM050000 ND080000 LH020000 LX020000 LJ010000 LX010000 LE150000 SC010000 LJ160000 SF220000 SF380000 SF540000 GP020000 SM190000	9 I Y i y ë Ö Þ SM060000 ND090000 LJ020000 LY020000 LJ010000 LY010000 LE170000 LO160000 SM680000 SF230000 SF390000 SF040000 GT620000 SA790000	• SM060000 ND090000 LJ020000 LY020000 LJ010000 LY010000 LE170000 LO160000 SM680000 SF230000 SF390000 SF040000 GT620000 SA790000	· SM070000 SM310000 SP010000 SM040000 SP130000 LJ020000 LZ020000 LJ010000 LZ010000 LE130000 LU180000 SM690000 SF240000 SF400000 SF010000 GO320000 SD630000	· SM070000 SM310000 SP010000 SM040000 SP130000 LJ020000 LZ020000 LJ010000 LZ010000 LE130000 LU180000 SM690000 SF240000 SF400000 SF010000 GO320000 SD630000	· SM080000 SM300000 SA010000 SP140000 LK020000 SM060000 LKD10000 SM110000 LI170000 SC040000 NP010000 SF250000 SF410000 SF610000 GD010000 SA800000	✓ SM080000 SM300000 SA010000 SP140000 LK020000 SM060000 LKD10000 SM110000 LI170000 SC040000 NP010000 SF250000 SF410000 SF610000 GD010000 SA800000	· SM090000 SA420000 SP080000 SA030000 LL020000 SM070000 LL010000 SM130000 LI150000 SC020000 NP040000 SF260000 SF420000 SF570000 SA450000 LN011000	n SM090000 SA420000 SP080000 SA030000 LL020000 SM070000 LL010000 SM130000 LI150000 SC020000 NP040000 SF260000 SF420000 SF570000 SA450000 LN011000	· SM093000 SM780000 SP100000 SA040000 LM020000 SM080000 LM010000 SM140000 SM180000 LU140000 NF050000 SF270000 SF430000 SF580000 GF010001 ND621000	2 SM093000 SM780000 SP100000 SA040000 LM020000 SM080000 LM010000 SM140000 SM180000 LU140000 NF050000 SF270000 SF430000 SF580000 GF010001 ND621000	· SM091000 SM600000 SP110000 SA050000 LN020000 SD150000 LN010000 SD190000 LA140000 LU160000 SP170000 SF280000 SF440000 SF590000 GE010000 SM470000	· SM091000 SM600000 SP110000 SA050000 LN020000 SD150000 LN010000 SD190000 LA140000 LU160000 SP170000 SF280000 SF440000 SF590000 GE010000 SM470000	· SM0690000 SV040000 SP120000 SP150000 LO020000 SP090000 LO010000 SM790000 SM240000 SC070000 SP180000 SF030000 SF450000 SF690000 SA380000 (RSP) SP305000	· SM0690000 SV040000 SP120000 SP150000 LO020000 SP090000 LO010000 SM790000 SM240000 SC070000 SP180000 SF030000 SF450000 SF690000 SA380000 (RSP) SP305000

Figure 16.Canada/France(CP863)

Arabic

Code Page 00864

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0 SM590000	► (SP) SP010000	0 ND100000	@ SM050000	P LP020000	' SD130000	p LP010000	° SM190000	β GB010000	(RSP) SP300000	• ND100001	€ SCD40000	ؒ AD470000	ؓ SM360000	ؔ AX100004	ؕ	ؖ
-1 SS900000	☺ SM630000	! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000	؀ SD630000	؁ SA450000	؂ (SHY) SP320000	؃ ND010001	؄ AX300000	؅ AR010000	؆ AF010003	؇ AX100000	
-2 SM930000	؈ SM760000	؉ SP040000	؊ ND020000	؋ LB020000	، LR020000	؍ LB010000	؎ LR010000	؏ SA790000	ؐ GF010001	ؑ AA210002	ؒ ND020001	ؓ AA310000	ؔ AZ010000	ؕ AQ010003	ؖ AN010003	
-3 SM910000	ؗ SP330000	ؘ SM010000	ؙ ND030000	ؚ LC020000	؛ LS020000	؜ LC010000	؝ LS010000	؞ SA800000	؟ SA020000	ؠ SC020000	آ ND030001	أ AA310000	ؤ AS010003	إ AK010003	ئ AH010000	
-4 SM690000	ا SM250000	ب SC030000	ة ND040000	ت LD020000	ث LT020000	ج LD010000	ح LT010000	خ SP150000	د NP010000	ذ SC010000	ر ND040001	ز AW310000	س AS230003	ش AL010003	ص AH010004	
-5 SF430000	؍ SM240000	؍ SM020007	؍ ND050000	؍ LB020000	؍ LU020000	؍ LB010000	؍ LU010000	؍ SF100000	؍ NF040000	؍ AA310002	؍ ND050001	؍ AC470002	؍ AS450003	؍ AM010003	؍ AA020002	
-6 SF240000	؍ SM700000	؍ SM030000	؍ ND060000	؍ LF020000	؍ LV020000	؍ LF010000	؍ LV010000	؍ SP110000	؍ SA700000	؍ ND060001	؍ AY310000	؍ AD450003	؍ AN010003	؍ AY010002	؍	
-7 SF440000	؍ SM770000	؍ SP050000	؍ ND070000	؍ LG020000	؍ LW020000	؍ LG010000	؍ LW010000	؍ SP050000	؍ SP170000	؍ ND070001	؍ AA010000	؍ AT450000	؍ AH010003	؍ AG310004	؍	
-8 SF230000	؍ SM130000	؍ SP080000	؍ ND080000	؍ LH020000	؍ LX020000	؍ LH010000	؍ LX010000	؍ SP090000	؍ SP180000	؍ AA010002	؍ ND080001	؍ AB010003	؍ AZ450000	؍ AW010000	؍ AQ010000	
-9 SF410000	؍ SM330000	؍ SP070000	؍ ND090000	؍ LJ020000	؍ LY020000	؍ LJ010000	؍ LY010000	؍ SF060000	؍ AL320000	؍ AB010000	؍ ND090001	؍ AT020000	؍ AC470003	؍ AA020000	؍ AL220000	
-A SF420000	؍ SM310000	؍ SM040007	؍ SP130000	؍ LJ020000	؍ LZ020000	؍ LJ010000	؍ LZ010000	؍ SF080000	؍ AL320003	؍ AT010000	؍ AFB10000	؍ AT010003	؍ AG310003	؍ AY010003	؍ AL220003	
-B SF400000	؍ SM300000	؍ SA010000	؍ SP140000	؍ LK020000	؍ SM060000	؍ LK010000	؍ SM110000	؍ SF070000	؍	؍ AT470000	؍ SP140007	؍ AT470003	؍ SM650000	؍ AD450000	؍ AL010000	
-C SF250000	؍ SA420000	؍ SP080000	؍ SA030000	؍ LL020000	؍ SM070000	؍ LL010000	؍ SM130000	؍ SF030000	؍	؍ SP080007	؍ AS010000	؍ AG230003	؍ SM660000	؍ AC470004	؍ AK010000	
-D SF390000	؍ SM780000	؍ SP100000	؍ SA040000	؍ LM020000	؍ SM080000	؍ LM010000	؍ SM140000	؍ SF010000	؍ AI020000	؍ AG230000	؍ AS230000	؍ AH450003	؍ SA060000	؍ AG310002	؍ AY010000	
-E SF380000	؍ SM660000	؍ SP110000	؍ SA050000	؍ LN020000	؍ SD150000	؍ LN010000	؍ SD190000	؍ SF020000	؍ AL020003	؍ AH450000	؍ AS450000	؍ AH470003	؍ SA070000	؍ AG310000	؍ SM470000	
-F SF260000	؍ SV040000	؍ SP120000	؍ SP150000	؍ LO020000	؍ SP090000	؍ LO010000	؍ SM790000	؍ SF040000	؍ SM870000	؍ AH470000	؍ SP150007	؍ AD010000	؍ AC470000	؍ AM010000	؍	

Figure 17. Arabic(CP864)

Arabic

Code Page 00864E

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
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01	®	◀	!	1	A	Q	a	q	•	∞	—	‘	‘	‘	‘	
02	‰	†	”	2	B	R	b	r	·	·	Ł	‘	‘	‘	‘	
03	♥	!!	#	3	C	S	c	s	‘	±	£	‘	‘	‘	‘	
04	♦	¶	\$	4	D	T	d	t	±	¾	¤	€	‘	‘	‘	
05	♣	§	%	5	E	U	e	u	—	¾	‘	¤	€	—	—	
06	♠	-	&	6	F	V	f	v	—	≈	‘	‘	‘	‘	‘	
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Figure 18.CP864E(Arabic)

Danish/Norwegian**Code Page 00865**

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0	► (SP) SM590000	0 @ SP010000	ND100000 SM050000	P LP020000	` SD130000	p LP010000	Ç LC420000	É LE120000	á LA110000	SF140000 SF020000	■ SF020000	■ SF450000	■ SF450000	á GA010000	≡ SA480000	
-1	☺ SS000000	◀ ! SM630000	1 A SP020000	Q LQ020000	a LA010000	q LQ010000	ü LU170000	æ LA510000	í LI110000	SF150000 SF070000	■ SF070000	■ SF470000	■ SF470000	ß LS610000	± SA020000	
-2	☻ SS010000	↑ " SM760000	2 B SP040000	R LR020000	b LB010000	r LR010000	é LE110000	Æ LA520000	ó LO110000	SF160000 SF060000	■ SF060000	■ SF480000	■ SF480000	≥ GC020000	≤ SA530000	
-3	♥ SS020000	!! # SP330000	3 C SM010000	S ND030000	c LC020000	s LS020000	â LC010000	ô LA150000	ú LU110000	SF110000 SF080000	■ SF080000	■ SF490000	■ SF490000	π GP010000	≤ SA520000	
-4	♦ SS030000	¶ SM250000	4 D SC030000	T ND040000	d LD020000	t LT020000	d LD010000	t LT010000	ä LA170000	ñ LN190000 SF090000	■ SF100000	■ SF100000	■ SF500000	Σ GS020000	ƒ SS260000	
-5	♣ SS040000	§ SM240000	% SM020000	5 E ND050000	U LB020000	e LU020000	u LU010000	à LA130000	ò LO130000	Ñ LN200000 SF190000	■ SF050000	■ SF510000	■ SF510000	σ GS010000	J SS270000	
-6	♠ SS050000	- SM700000	& SM030000	6 F ND060000	V LF020000	f LV020000	v LF010000	å LA270000	û LU150000	■ SM210000 SF200000	■ SF360000	■ SF520000	■ SF520000	μ GM010000	÷ SA060000	
-7	● SM570000	↓ ' SM770000	7 G SP050000	W ND070000	g LG020000	w LW020000	ç LG010000	ù LC410000	ö LU130000	■ SM200000 SF210000	■ SF370000	■ SF530000	■ SF530000	τ GT010000	≈ SA700000	
-8	█ SM570001	↑ (SM320000	8 H SP060000	X ND080000	h LJ020000	X LX020000	h LJ010000	é LX010000	ÿ LY170000	■ SP160000 SF220000	■ SF380000	■ SF540000	■ SF540000	Φ GF020000	° SM190000	
-9	○ SM750000	↓) SM330000	9 I SP070000	I ND090000	Y LJ020000	i LY020000	y LJ010000	ë LY010000	Ö LE170000	■ SM680000 SF230000	■ SF390000	■ SF400000	■ SF400000	Θ GT620000	* SA790000	
-A	◎ SM750002	→ * SM310000	: J SM040000	Z LJ020000	[LZ020000	j LJ010000	z LZ010000	è LE130000	Ü LU180000	■ SM660000 SF240000	■ SF400000	■ SF010000	■ SF010000	Ω GO320000	* SD630000	
-B	♂ SM280000	← + SM300000	; K SA010000	K LP020000	{ SMD60000	k LK010000	{ SM110000	ì LII10000	ø LU190000	½ NF010000 SF250000	■ SF410000	■ SF610000	■ SF610000	δ GD010000	✓ SA800000	
-C	♀ SM1290000	, SA420000	< L SP080000	\ SA030000	\ LL020000	l SM070000	| LL010000	í SM130000	£ LII50000	¼ NP040000 SF260000	■ SF420000	■ SF570000	■ SF570000	∞ SA450000	n LN011000	
-D	¤ SM930000	↔ - SM780000	= M SP100000	] LM020000	m SM080000	} LM010000	} SM140000	ì LII30000	Ø LO620000	½ SP030000 SF270000	■ SF430000	■ SF580000	■ SF580000	ϕ GF010001	² ND021000
-E	♪ SM910000	▲ . SM600000	> N SP110000	~ SA050000	^ LN020000	n SDI50000	~ LN010000	Ä SD190000	Pts LA180000	« SP170000 SF280000	■ SF440000	■ SF590000	■ SF590000	ε GE010000	■ SM470000	
-F	☼ SM690000	▼ / SP040000	? O SP120000	— LP020000	o SP090000	— LO010000	— SM790000	Å LA280000	f SC070000	○ SC010000 SF030000	■ SF040000	■ SF600000	■ SF600000	□ SA380000	(RSP) SP300000	

Figure 19.Denmark/Norway(CP865)

PC Data, Cyrillic, Russian**Code Page 00866**

HEX DIGITS	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0	► (SP) SM590000	0 (SP) SP010000	@ (ND) ND100000	P (SM050000)	` (LP020000)	p (SD130000)	A (LP010000)	P (KA020000)	a (KR020000)	а (KA010000)	sf140000	□ (SF020000)	ш (SF460000)	р (KR010000)	е (KE180000)	
-1	☺ (SS000000)	! (SM630000)	1 (SP020000)	A (ND010000)	Q (LA020000)	а (LQ020000)	q (LA010000)	Б (LQ010000)	KB020000	с (KS020000)	б (KB010000)	sf150000	□ (SF070000)	е (SF470000)	с (KS010000)	ë (KE170000)
-2	☻ (SS010000)	↑ (SM760000)	" (SP040000)	2 (ND020000)	B (LB020000)	R (LR020000)	b (L601000)	г (LR010000)	KV020000	В (KT020000)	т (KV010000)	sf160000	□ (SF080000)	т (SF480000)	т (KT010000)	€ (KE160000)
-3	♥ (SS020000)	!! (SP330000)	# (SM010000)	3 (ND030000)	C (LC020000)	S (LS020000)	c (LC010000)	Г (LS010000)	KG020000	У (KU020000)	г (KG010000)	sf110000	□ (SF090000)	у (SF490000)	у (KU010000)	€ (KE150000)
-4	♦ (SS030000)	¶ (SM250000)	\$ (SC030000)	4 (ND040000)	D (LD020000)	T (LT020000)	d (LD010000)	т (LT010000)	KD020000	Ф (KF020000)	д (KD010000)	sf090000	□ (SF100000)	ф (SF500000)	ф (KP010000)	і (KI180000)
-5	♣ (SS040000)	§ (SM240000)	% (SM020000)	5 (ND050000)	E (LB020000)	U (LU020000)	e (LU010000)	е (LU010000)	KE020000	Х (KH020000)	е (KE010000)	sf190000	□ (SF050000)	х (SF510000)	х (KH010000)	ї (KI170000)
-6	♠ (SS050000)	- (SM700000)	& (SM030000)	6 (ND060000)	F (LF020000)	V (LV020000)	f (LF010000)	в (LV010000)	KZ220000	Ж (KC020000)	ж (KZ210000)	sf200000	□ (SF360000)	п (SF520000)	п (KC010000)	ÿ (KU240000)
-7	• (SM570000)	↑ (SM770000)	' (SP050000)	7 (ND070000)	G (LG020000)	W (LW020000)	g (LG010000)	в (LW010000)	KZ020000	З (KC220000)	з (KZ010000)	sf210000	□ (SF370000)	з (SF530000)	ч (KC210000)	ÿ (KU230000)
-8	█ (SM570001)	↑ (SM320000)	((SP040000)	8 (ND080000)	H (LH020000)	X (LX020000)	h (LH010000)	х (LX010000)	KI020000	И (KS220000)	и (KI010000)	sf220000	□ (SF380000)	и (SF540000)	и (KS210000)	° (SM190000)
-9	○ (SM750000)	↓ (SM330000)	) (SP070000)	9 (ND090000)	I (LI020000)	Y (LY020000)	i (LI010000)	у (LY010000)	KJ120000	Й (KS160000)	й (KJ110000)	sf230000	□ (SF390000)	й (SF040000)	ш (KS150000)	• (SAT90000)
-A	○ (SM750002)	→ (SM310000)	* (SM040000)	: (SP130000)	J (LJ020000)	Z (LZ020000)	j (LJ010000)	з (LZ010000)	KK020000	К (KU220000)	к (KK010000)	sf240000	□ (SF400000)	к (SF010000)	ъ (KU210000)	• (SD630000)
-B	♂ (SM280000)	← (SM300000)	+ (SA010000)	; (SP140000)	K (LK020000)	м (SM060000)	k (LK010000)	м (SM110000)	KL020000	ы (KY020000)	ы (KL010000)	sf250000	□ (SF410000)	ы (SF610000)	ы (KY010000)	✓ (SA090000)
-C	♀ (SM290000)	, (SA420000)	< (SP080000)	— (SA030000)	L (LL020000)	\\ (SM070000)	l (LL010000)	л (SM130000)	KM020000	мь (KX120000)	м (KM010000)	sf260000	□ (SF420000)	ь (SF570000)	ь (KX110000)	№ (SM000000)
-D	⌚ (SM930000)	↔ (SM780000)	- (SP100000)	= (SA040000)	M (LM020000)	] (SM080000)	m (LM010000)	н (SM140000)	KN020000	э (KE140000)	н (KN010000)	sf270000	□ (SF430000)	э (SF580000)	э (KE130000)	⌚ (SC010000)
-E	♪ (SM910000)	▲ (SM600000)	. (SP110000)	> (SA050000)	N (LN020000)	^ (SD150000)	n (LN010000)	о (SD190000)	KO020000	ю (KU160000)	о (KO010000)	sf280000	□ (SF440000)	о (SF590000)	ю (KU150000)	■ (SM470000)
-F	☀ (SM690000)	▼ (SP040000)	/ (SP120000)	? (SP150000)	O (LO020000)	— (SP090000)	o (LO010000)	ш (SM790000)	KP020000	я (KA160000)	я (KP010000)	sf300000	□ (SF450000)	я (SF600000)	я (KA150000)	(RSP) (SP300000)

Figure 20. Russian(CP866)

Turkish 2

Code Page 00867

00		▶	0	€	P	‘	P	Ç	É	á	„	L	º	ö	-		
01	€	◀	!	1	À	Q	a	q	ü	æ	f	„	ł	±	±		
02	€	:	"	2	B	R	b	r	é	ë	ó	„	T	£	ö		
03	♥	!!	#	3	C	S	c	s	á	ó	ú	|	†	ë	ó	×	
04	♦	₩	\$	4	D	T	d	t	á	ö	ñ	|	-	è	ö	₩	
05	♣	S	%	5	E	U	e	u	à	ò	ñ	À	+	ó	s		
06	♦	-	&	6	F	V	f	v	á	ó	í	Ã	á	í	í	μ	+
07	.	‡	'	7	G	W	g	w	ç	ù	ğ	À	Á	Í	,		
08	□	†	(8	H	X	h	x	é	í	í	e	ł	í	x	°	
09	◦	!)	9	I	Y	i	y	ë	ö	•	í	ř	J	ú	..	
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0C	♀	„	,	<	L	\	l	l	ƒ	€	¾	í	ł	í	³		
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0F	*	▼	/	?	O	_	o	o	À	ş	»	ł	¤	■	·		

Figure 21.Turkish2(CP867)

OCR-A**Code Page 00876**

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0		(SP) SP010000	0 ND100000	@ SM030000	P LP020000	h SC020000	p LP010000									
-1		! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000									
-2		" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000				Æ LA520000					
-3		# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000									
-4		\$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000									
-5		% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000				Ñ LN200000					
-6		& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000									
-7		' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000				Ø LO620000					
-8	— SO150000	(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000									
-9		) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000				Ö LO180000					
-A	*	: SM040000	J SP130000	Z LJ020000	J LZ020000	j LJ010000	z LZ010000				Ü LU180000					
-B	+	; SA010000	K SP140000	[LK020000	k SM060000	{ LK010000	sm110000									
-C	,	< SP080000	L SA030000	\ LL020000	M SM070000	| LL010000	I SO130000				£ SC025000					
-D	-	= SP100000	M SA040000	] LM025000	m SM080000	) LM010000	}) SM140000				¥ SC050000					
-E	+	> SP110000	N SA050000	^ LN020000	ा SM090000	n LN010000	় SO000000	ং LA180000								
-F	/	?	O SP120000	ঃ SP130000	ঃ LO020000	ঃ SO010000	ঃ LO010000	ঃ SO140000	ঃ LA280000							

Figure 22.OCR-A(CP876)

OCR-B**Code Page 00877**

HEX DIGITS	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
1ST → 2ND ↓	0															
-0		(SP) SP010000	0 ND100000	@ SM050000	P LP020000	' SD130000	p LP010000									
-1		! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000	ü LU170000	æ LA510000						ß LS610000	
-2		" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000		Æ LA520000							
-3		# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000									
-4		\$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000	ä LA170000	ö LA170000							
-5		% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000			N LN200000					§ SM240000	
-6		& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000	å LA270000		ø LO610000						
-7		' SP060000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000			Ø LO620000					„ SD410000	
-8	— SO150000	(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000									
-9		) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000		Ö LO160000	ij SP093000	ij LI510000				„ SD170000	
-A		*	:	J SM040000	Z LJ020000	j LJ010000	z LZ010000		Ü LU180000	IJ LI520000						
-B		+	;	K SA010000	[SP140000	k LK020000	{ SM060000		^ SD150000							
-C		,	<	L SP080000	\ SA030000	l LL020000	| SM070000		£ SC020000							
-D		-	=	M SP100000	] SA040000	m LM020000	{ SM080000		¥ SC050000							
-E		.	>	N SP110000	^ SA050000	n LN020000	~ SM090000		Ä SD190000	Ä LA180000						
-F		/	?	O SP120000	— SP150000	o LO020000	■ SD470000		Å SO140000	Å LA280000				„ SC010000	,	SD110000

Figure 23.OCR-B(CP877)

Latin 2 (ISO 8859-2)**Code Page 00912**

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0		(SP) SP010000	0 ND100000	@ SM050000	P LP020000	' SD130000	p LP010000				(RSP) SP300000	° SM190000	Ŕ LR120000	Đ LD620000	ŕ LR110000	đ LD610000
-1		! SP1Q0000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000				À LA440000	à LA430000	Á LA120000	Ñ LN120000	á LA110000	ń LN110000
-2		" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000				„ SD230000	„ SD430000	Â LA160000	Ñ LN220000	â LA150000	ň LN210000
-3		# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000				Ł LL620000	ł LL610000	Ă LA240000	Ó LO120000	ă LA230000	ó LO110000
-4		\$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000				ꝝ SC010000	ꝝ SD110000	Ä LA180000	Ô LO160000	ä LA170000	ô LO150000
-5		% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000				Ł LL230000	Ł LL210000	Ł LL120000	Õ LO250000	í LL110000	ő LO250000
-6		& SM030000	6 ND060000	F LF020000	V LV020000	f LP010000	v LV010000				Ś LS120000	ś LS110000	Ć LC120000	Ö LO140000	ć LC110000	ö LO170000
-7		' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000				§ SM240000	„ SD210000	Ç LC420000	× SA070000	ç LC410000	÷ SA060000
-8		(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000				„ SD170000	„ SD410000	Č LC220000	Ŗ LR220000	č LC210000	Ŗ LR210000
-9		) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000				Š LS220000	š LS210000	É LE180000	Ü LU280000	é LE110000	ü LU270000
-A		*	:	J SM040000	Z SP130000	j LJ020000	z LJ010000				Ş LS420000	ş LS410000	Ę LE440000	Ú LU120000	ę LE430000	ú LU110000
-B		+	;	K SA010000	[SP140000	k LK020000	{ SM060000				Ͳ LT220000	Ͳ LT210000	Ӗ LE180000	Ӯ LU260000	ӗ LE170000	ӻ LU250000
-C		,	<	L SP080000	\ SA030000	l LL020000	| SM070000				Ž LZ120000	ž LZ110000	Ӗ LE220000	Ӯ LU180000	ӗ LE210000	ӻ LU170000
-D		-	=	M SP100000	] SA040000	m LM020000	} SM080000				(SHY) SP320000	“ SD250000	Ӣ LJ120000	Ӳ LY120000	ି LJ110000	Ӵ LY110000
-E		.	>	N SP110000	^ SA050000	n LN020000	~ SD150000				Ž LZ220000	ž LZ210000	Ӣ LJ160000	Ӯ LT420000	ି LJ150000	ӻ LT410000
-F		/	?	O SP120000	— SP150000	o LO020000					Ž LZ300000	ž LZ290000	ڏ _ڦ LD220000	ڏ _ڦ LS610000	ڏ _ڦ LD210000	ڦ _ڦ SD290000

Figure 24.ISO8859/2(Latin2)

Latin 3 (ISO 8859-3)**Code Page 00913**

HEX DIGITS	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-		
1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-		
-0		(SP) SP010000	0 ND100000	@ SM050000	P LP020000	' SD130000	p LP010000			(RSIP) SP300000	° SM190000	À LA140000		à LA130000				
-1		! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000			H LH160000	h LH161000	Á LA120000	Ñ LN200000	á LA110000	ñ LN190000			
-2		" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000			~ SD230000	z ND021000	Â LA160000	Ò LO140000	â LA150000	ò LO130000			
-3		# SM030000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000			£ SC020000	³ ND031000		Ó LO120000		ó LO110000			
-4		\$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000			¤ SC010000	' SD110000	Ä LA180000	Ö LO160000	ä LA170000	ö LO150000			
-5		% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000			µ SM170000	€ LC300000	Ğ LG300000	ć LC290000	ğ LG290000				
-6		& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000			Ħ LH160000	ħ LH150000	Ĉ LC160000	Ö LO180000	ĉ LC150000	ö LO170000			
-7		' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000			§ SM240000	· SD630000	Ҫ LC420000	× SA070000	ç LC410000	÷ SA060000			
-8		(SP040000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000			“ SD170000	„ SD410000	È LE140000	Ğ LE160000	è LE130000	ğ LG150000			
-9		) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000			Í LI300000	í LI610000	É LE120000	Ù LU140000	é LE110000	ù LU130000	
-A		*	:	J SM040000	Z SP130000	j LJ020000	z LZ020000			Ş LS420000	ş LS410000	Ê LE160000	Ú LU120000	ê LE150000	ú LU110000			
-B		+	;	K SA010000	[SP140000	k LK020000	{ SM060000	LK010000 SM100000			Ğ LG240000	ğ LG230000	Ë LE180000	Û LU160000	ë LE170000	û LU150000		
-C		,	<	L SP080000	\ SA030000	l LL020000	|\ SM070000	ll LL010000	sm SM130000		Ĵ LJ160000	Ĵ LJ150000	Ì LJ140000	Ü LU180000	í LJ130000	ü LU170000		
-D		-	=	M SP100000] SA040000	m LM020000	{ SM080000	lm LM010000	sm SM140000		(SHY) SP320000	½ NF010000	Í LJ120000	Ü LU240000	í LJ110000	ü LU230000		
-E		.	>	N SP110000	^ SA050000	n LN020000	~ SD150000	ln LN010000	sd SD190000					Î LJ160000	Ș LS160000	î LJ150000	ș LS150000	
-F		/	?	O SP120000	— SP150000	o LO020000	o SP090000	lo LO010000			Ž LZ300000	ž LZ290000	İ LJ180000	ß LS610000	ï LJ170000	· SD290000		

Figure 25.ISO8859/3(Latin3)

Latin 4 (ISO 8859-4)**Code Page 00914**

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0		(SP) SP010000	0 ND100000	@ SM090000	P LP020000	' SD130000	p LP010000				(RSP) SP300000	º SM190000	Ā LA320000	Ð LD620000	ã LA310000	đ LD610000
-1		! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000				À LA440000	à LA430000	Á LA120000	Ñ LN420000	á LA110000	ñ LN410000
-2		" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000				Ķ LK910000	ķ SD430000	Â LA180000	Õ LO320000	â LA150000	õ LO310000
-3		# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000				Ŗ LR420000	ŗ LR410000	Ã LA200000	Ķ LK420000	ã LA190000	ķ LK410000
-4		\$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000				Ŗ SC010000	Ŗ SD110000	Ã LA180000	Ô LO160000	ä LA170000	ô LO150000
-5		% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000				Ĩ LI200000	ĩ LI190000	Å LA280000	Õ LO200000	å LA270000	õ LO190000
-6		& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000				Ļ LL420000	ļ LL410000	Æ LA520000	Ö LO180000	æ LA510000	ö LO170000
-7		' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000				§ SM240000	§ SD210000	Ѷ LI440000	× SA070000	⠇ LI430000	÷ SA060000
-8		(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000				" SD170000	" SD410000	Č LC220000	Ø LO120000	č LC210000	ø LO110000
-9		) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000				Š LS220000	š LS210000	É LE120000	Ù LU440000	é LE110000	ù LU430000
-A	*	:	J SM040000	Z SP130000	j LJ020000	z LJ010000				Ē LE320000	ē LE310000	Ȩ LE440000	Ú LU120000	ë LE430000	ú LU110000	
-B	+	;	K SA010000	[SP140000	k LK020000	{ SM060000	LK010000 SM110000				Ģ LG420000	ģ LG410000	Ȩ LE180000	Û LU160000	ë LE170000	û LU150000
-C	,	< SP080000	L SA030000	\ LL020000	M SM070000	| LL010000	l SM130000				Ŧ LT620000	ŧ LT610000	Ē LE300000	Ü LU180000	é LE290000	ü LU170000
-D	-	= SP100000	M SA040000	] LM020000	m SM080000	}{ LM010000	}) SM140000				(SHY) SP320000	N LN620000	Í LI120000	Ӯ LU250000	í LI110000	ӯ LU190000
-E	.	> SP110000	N SA050000	^ LN020000	n SD150000	~ LN010000	~ SD190000				Ž LZ220000	ž LZ210000	Î LI160000	Ӱ LU320000	î LI150000	ӯ LU310000
-F	/	?	O SP120000	— SP150000	O LO020000	— SP080000	O LO010000				- SD310000	ŋ LN610000	Ī LI320000	ڦ LS610000	ି LI310000	* SD290000

Figure 26.ISO8859/4(Latin4)

Cyrillic (ISO 8859-5)**Code Page 00915**

HEX DIGITS	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0		(SP) SP010000	0 ND100000	@ SM050000	P LP020000	' SD130000	p LP010000				(RSP) SP300000	A KA020000	P KR020000	a KA010000	p KR010000	Nº SM000000
-1		! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000				Ё KE180000	Б KB020000	С KS020000	б KB010000	с KS010000	ë KE170000
-2		" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	г LR010000				Ђ KD620000	В KG020000	Т KT020000	в KG010000	т KT010000	ђ KD610000
-3		# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000				Ѓ KG120000	Г KG020000	У KU020000	г KG010000	у KU010000	ѓ KG110000
-4		\$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000				€ KE160000	Д KD020000	Ф KF020000	д KD010000	ф KF010000	€ KE150000
-5		% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000				Ѕ KZ160000	Е KE020000	Х KH020000	е KE010000	х KH010000	Ѕ KZ150000
-6		& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000				І KI120000	Ж KZ220000	Ц KC020000	ж KZ210000	ци KC010000	і KI110000
-7		' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000				Ї KI180000	З KZ020000	Ч KC220000	з KZ010000	ч KC210000	ї KI170000
-8		(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000				Ј KJ020000	И KJ020000	Ш KS220000	и KJ010000	ш KS210000	ј KJ010000
-9		) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000				Љ KJ120000	Й KJ120000	Щ KS160000	й KJ110000	щ KS150000	љ KJ140000
-A		* SM040000	:	J SP130000	Z LJ020000	j LJ010000	z LJ010000				Њ KN120000	К KK020000	Ђ KU220000	ќ KK010000	њ KU210000	Њ KN110000
-B		+	;	K SA010000	[SP140000	k LK020000	{ SM060000	LK010000	SM110000		Ћ KC120000	Л KL020000	Ы KY020000	л KL010000	ы KY010000	Ћ KC110000
-C		,	<	L SP080000	\ SA030000	l LL020000	\\ SM070000	ll010000	sm130000		Ќ KK120000	М KM020000	Ь KX120000	м KM010000	ь KX110000	ќ KK110000
-D		-	=	M SP100000	] SA040000	m LM020000	{ SM080000	lm010000	sm140000		(SHY) SP320000	Н KN020000	Э KE140000	н KN010000	э KE130000	§ SM240000
-E		.	>	N SP110000	^ SA050000	n LN020000	~ SD150000	ln010000	sd190000		Ӳ KU240000	О KO020000	Ю KU160000	о KO010000	ю KU150000	Ӳ [ۡ] KU230000
-F		/	?	O SP120000	— SP150000	o LO020000	— SP090000	lo010000			Ұ KG220000	П KP020000	Я KA160000	п KP010000	я KA150000	Ұ KG210000

Figure 27.ISO8859/5(Latin/Cyrillic)

Latin 8 (ISO 8859-8)**Code Page 00916**

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0		(SP) SP010000	0 ND100000	@ SM050000	P LP020000	' SD130000	p LP010000				(RSP) SP300000	° SM190000			₪ HX380000	₪ HN801000
-1		! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000				± SA020000				₪ HB010000	₪ HS010000
-2		" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000				¢ SC040000	² ND021000			₪ HG010000	₪ HX350000
-3		# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000				£ SC010000	³ ND031000			₪ HD010000	₪ HP610000
-4		\$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000				₪ SC010000	₪ SD110000			₪ HH010000	₪ HP010000
-5		% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000				¥ SC050000	₪ SM170000			₪ HW010000	₪ HS610000
-6		& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000				₪ SM650000	₪ SM250000			₪ HZ010000	₪ HS450000
-7		' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000				₪ SM240000	₪ SM570000			₪ HH450000	₪ HQ010000
-8		(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000				₪ SD170000	₪ SD410000			₪ HT450000	₪ HR010000
-9		) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000				₪ SM520000	₪ ND011000			₪ HY010000	₪ HS210000
-A		*	:	J SM040000	Z SP130000	j LJ020000	z LJ010000				₪ SA070000	₪ SA060000			₪ HK610000	₪ HT010000
-B		+	;	K SA010000	[SP140000	k LK020000	{ SM060000				₪ SP170000	₪ SP180000			₪ HK010000	
-C		,	<	L SP080000	\ SA030000	l LL020000	| SM070000				₪ SM660000	₪ NF040000			₪ HL010000	
-D		-	=	M SP100000	] SA040000	m LM020000	{ SM080000				₪ SP320000	₪ NF010000			₪ HM610000	
-E		.	>	N SP110000	^ SA050000	n LN020000	~ SD150000				₪ SM530000	₪ NF050000			₪ HM010000	
-F		/	?	O SP120000	— SP150000	o LO020000					₪ SM150000				₪ SM100000	₪ HN610000

Figure 28. ISO8859/8

Latin 5 (ISO 8859-9)**Code Page 00920**

HEX DIGITS	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0		(SP) SP010000	0 ND100000	@ SM050000	P LP020000	' SD130000	p LP010000			(RSP) SP300000	° SM190000	À LA140000	᠁ LG240000	à LA130000	᠁ LG230000	
-1		! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000			i SP030000	± SA020000	᠁ LA120000	᠁᠁ LN200000	á LA110000	᠁᠁ LN190000	
-2		" SP040000	2 ND020000	B LB020000	R LR020000	b Lb010000	r Lr010000			€ SC040000	² ND021000	᠁᠁ LA160000	᠁᠁ LO140000	â LA150000	᠁᠁ LO130000	
-3		# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000			£ SC020000	³ ND031000	᠁᠁ LA200000	᠁᠁ LO120000	ã LA190000	᠁᠁ LO100000	
-4		\$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000			¤ SC010000	' SD110000	᠁᠁ LA180000	᠁᠁ LO140000	ä LA170000	᠁᠁ LO150000	
-5		% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000			¥ SC050000	µ SM170000	᠁᠁ LA280000	᠁᠁ LO260000	å LA270000	᠁᠁ LO190000	
-6		& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000			। SM460000	॥ SM250000	᠁᠁ LA520000	᠁᠁ LO140000	æ LA510000	᠁᠁ LO170000	
-7		' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000			§ SM240000	· SD630000	᠁᠁ LC420000	᠁᠁ SA070000	ç LC410000	᠁᠁ SA060000	
-8		(SP040000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000			“ SD170000	” SD410000	᠁᠁ LE140000	᠁᠁ LO0620000	è LE130000	᠁᠁ LO010000	
-9		) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000			© SM520000	¹ ND011000	᠁᠁ LE120000	᠁᠁ LU140000	é LE110000	᠁᠁ LU130000
-A		*	:	J SM040000	Z SP130000	j LJ020000	z LZ020000			¤ SM210000	¤ SM200000	᠁᠁ LE160000	᠁᠁ LU120000	ê LE150000	᠁᠁ LU110000	
-B		+	;	K SA010000	[SP140000	k LK020000	{ SM060000			« SP170000	» SP180000	᠁᠁ LE180000	᠁᠁ LU160000	ë LE170000	᠁᠁ LU150000	
-C		,	<	L SP080000	\ SA030000	l LL020000	| SM070000			¬ SM460000	¼ NF040000	᠁᠁ LJ140000	᠁᠁ LU180000	í LJ130000	᠁᠁ LU170000	
-D		-	=	M SP100000	] SA040000	m LM020000	{ SM080000			(SHY) SP320000	½ NP010000	᠁᠁ LJ120000	᠁᠁ LJ13000000	í LJ110000	᠁᠁ LJ100000
-E		.	>	N SP110000	^ SA050000	n LN020000	~ SD150000			® SM530000	¾ NP050000	᠁᠁ LJ140000	᠁᠁ LJ160000	§ LS420000	᠁᠁ LJ150000	
-F		/	?	O SP120000	— SP150000	o LO020000	o SP090000			— SM150000	᠁᠁ SP160000	᠁᠁ LJ180000	᠁᠁ LS610000	í LJ170000	᠁᠁ LY170000	

Figure 29. ISO8859/9(Latin5)

Baltic Multilingual**Code Page 00921**

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-		
-0				(SP) SP010000	0 ND100000	@ SM030000	P LP020000	' SD130000	p LP010000				(RSP) SP300000	º SM190000	À LA440000	Š LS220000	ä LA430000	š LS210000
-1				! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000				" SP220000	± SA020000	Ì LN440000	Ñ LN120000	í LI430000	ń LN110000
-2				" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000				€ SC040000	² ND021000	Ā LA320000	Ñ LN420000	ā LA310000	ń LN410000
-3				# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000				£ SC020000	³ ND031000	Ć LC120000	Ó LO120000	ć LC110000	ó LO110000
-4				\$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000				¤ SC010000	“ SP210000	Ä LA180000	Ö LO320000	ä LA170000	ö LO310000
-5				% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000				" SP230000	µ SM170000	Å LA280000	Õ LO200000	å LA270000	õ LO190000
-6				& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000				| SM650000	¶ SM250000	E LE440000	Ö LO180000	ë LE430000	ö LO170000
-7				' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000				§ SM240000	· SD630000	È LE320000	× SA070000	ë LE310000	÷ SA060000
-8				(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000				Ø LO620000	ø LO610000	Č LC220000	Ù LU440000	č LC210000	ù LU430000
-9				) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000				© SM520000	¹ ND011000	É LE120000	Ł LL620000	é LE110000	ł LL610000
-A				*	:	J SP130000	Z LJ020000	j LJ010000	z LZ010000				R LR420000	ŕ LR410000	Ž LZ120000	Ś LS120000	ź LZ110000	ś LS110000
-B				+	;	K SP140000	[LK020000	k SM060000	{ LK010000				« SP170000	» SP180000	É LE300000	Ú LU320000	é LE290000	ú LU310000
-C				,	< SP080000	L SA030000	\ LL020000	M SM070000	l LL010000	| SM130000			¬ SM680000	¼ NF040000	G LG420000	Ü LU180000	ğ LG410000	ü LU170000
-D				-	= SP100000	M SA040000	] LM020000	m SM080000	} LM010000	) SM140000			(SHY) SP320000	½ NF010000	K LK420000	Ž L2350000	ķ LK410000	ż L2280000
-E				+	> SP110000	N SA050000	^ LN020000	~ SD150000	n LN010000	~ SD190000			® SM530000	¾ NF050000	Í LJ320000	Ž L2220000	í LJ310000	ž L2210000
-F				/	?	O SP120000	— SP130000	o LO020000					Æ LA520000	æ LA510000	Ł LL420000	ß LS610000	ł LL410000	’ SP200000

Figure 30. BalticWindows(CP921)

Estonian

Code Page 00922

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0			(SP) SP010000	0 ND100000	@ SM000000	P LP020000	` SD130000	p LP010000			(RSP) SP300000	º SM180000	À LA140000	Š LS280000	à LA130000	š LS210000
-1		!	1 SP020000	A ND010000	Q LA020000	a LQ020000	q LA010000			i SP030000	± SA020000	Á LA120000	Ñ LN200000	á LA110000	ñ LN190000	
-2		"	2 SP040000	B ND120000	R LB020000	b LR020000	r LB010000			¢ SC040000	² ND021000	Â LA180000	Ò LO140000	â LA150000	ò LO130000	
-3	#	3 SM010000	C ND030000	S LC020000	c LS020000	s LCD010000				£ SC020000	³ ND031000	Ã LA200000	Ó LO120000	ã LA180000	ó LO110000	
-4	\$	4 SC030000	D ND040000	T LD020000	d LT020000	t LD010000	ł LT010000			ł SC010000	’ SD110000	Ä LA180000	Ö LO160000	ää LA170000	ö LO150000	
-5	%	5 SM020000	E ND050000	U LE020000	e LU020000	u LE010000				¥ SC050000	µ SM170000	Å LA280000	Õ LO200000	ää LA270000	õ LO190000	
-6	&	6 SM030000	F ND060000	V LF020000	f LV020000	v LF010000				! SM050000	¶ SM250000	Æ LA520000	Ö LO180000	æ LA510000	ö LO170000	
-7	'	7 SP050000	G ND070000	W LG020000	g LW020000	w LG010000				§ SM240000	· SD800000	Ç LC420000	× SA070000	ç LC410000	÷ SA060000	
-8	(	8 SP060000	H ND080000	X LH020000	h LX020000	x LH010000				” SD170000	„ SD410000	È LE140000	Ø LO620000	è LE130000	ø LO610000
-9	)	9 SP070000	I ND090000	Y LJ020000	i LY020000	y LJ010000				© SM020000	¹ ND011000	É LE120000	Ù LU140000	é LE110000	ù LU130000
-A	*	:	J SM040000	Z SP130000	j LJ020000	z LZ010000				‰ SM210000	‰ SM200000	Ê LE160000	Ú LU120000	ê LE150000	ú LU110000	
-B	+	;	K SA010000	[SP140000	k LK020000	{ SM080000				« SP170000	» SP180000	Ë LE180000	Û LU160000	ë LE170000	û LU150000	
-C	,	<	L SP080000	\ SA030000	l LL020000	| SM070000				¬ SM080000	¼ NF040000	Ì LI140000	Ü LU160000	í LI130000	ü LI170000	
-D	-	=	M SP100000	] SA040000	m LM020000	) SM080000				(SHY) SP320000	½ NF010000	Í LI120000	Ý LY120000	í LI110000	ý LY110000
-E	.	>	N SP110000	^ SA050000	n LN020000	~ SD150000				® SM030000	¾ NF050000	Î LI160000	Ž LZ220000	î LI150000	ž LZ210000	
-F	/	?	O SP120000	— SP150000	o LO020000					- SM150000	ö SP160000	Ï LI180000	ß LS610000	ï LI170000	ÿ LY170000	

Figure 31.Estonian (CP922)

Latin 9 (ISO 8859-15) + euro**Code Page 00923**

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0		(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	P LP010000				(RSI) SP300000	° SM190000	À LA140000	Ð LD640000	à LA130000	õ LD630000
-1		! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000				i SP030000	± SA020000	Å LA120000	Ñ LN200000	á LA110000	ñ LN190000
-2		" SP040000	2 ND020000	B LB020000	R LR030000	b LB010000	r LR010000				é SC040000	² ND021000	Â LA160000	Ò LD140000	â LA150000	ò LD130000
-3		# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000				£ SC020000	³ ND031000	Ã LA200000	Ó LD120000	ã LA190000	ó LD110000
-4		\$ SC030000	4 ND040000	D LC020000	T LT020000	d LD010000	t LT010000				€ SC200000	Ž LZ220000	Ä LA180000	Ö LD160000	ää LA170000	ö LD150000
-5		% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000				¥ SC050000	µ SM170000	Å LA280000	Õ LD200000	å LA270000	õ LO190000
-6		& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000				Š LS220000	¶ SM250000	Æ LA520000	Ö LO180000	æ LA510000	ö LO170000
-7		' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000				§ SM240000	· SD630000	Ç LC420000	× SA070000	ç LC410000	÷ SA060000
-8		(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000				š LS210000	ž LZ210000	È LE140000	Ø LO620000	è LE130000	ø LO610000
-9		) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000				© SM520000	¹ ND011000	É LE120000	Ù LU140000	é LE110000	ù LU130000
-A		*	:	J SM040000	Z SP130000	j LJ020000	z LJ010000	L LZ010000			¤ SM210000	¤ SM200000	Ê LE160000	Ú LU120000	ê LE150000	ú LU110000
-B		+	;	K SA010000	[SP140000	k LK020000	{ SM060000	] LK010000	] SM110000		« SP170000	» SP180000	Ë LE180000	Û LU160000	ë LE170000	û LU150000
-C		,	<	L SP080000	\ SA030000	l LL020000	| SM070000	l LL010000	| SM130000		Œ SM660000	Œ LO520000	Ì LI140000	Ü LU180000	ì LI130000	ü LU170000
-D		-	=	M SP100000	] SA040000	m LM020000	} SM080000	m LM010000	} SM140000		(SHY) SP320000	œ LO510000	Í LI120000	Ý LY120000	í LI110000	ý LY110000
-E		.	>	N SP110000	^ SA050000	n LN020000	~ SC0150000	n LN010000	~ SD190000		® SM530000	ÿ LY180000	Î LI160000	Þ LT640000	î LI150000	þ LT630000
-F		/	?	O SP120000	— SP150000	o LC020000	o SP090000	o LO010000			- SD310000	ł SP180000	Ï LI160000	ß LS610000	ï LI170000	ÿ LY170000

Figure 32.ISO8859/15(Latin9) .151

Urdu

Code Page 01006

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-	
-0			(SP) SP010000	0 ND100000	@ SM050000	P I,P028000	' SD130000	p I,PH0000			(RSP) SP300000	। AA010000	ؑ AC210000	ؔ AS230003	ؓ AF010003	ؔ AW010003	
-1			! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000			.	ؑ ND100001	ؒ AA010002	ؓ AC210003	ؔ AS450006	ؔ AQ010000	ؔ AH020000
-2			" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000			ؑ ND010001	ؒ AA010006	ؓ AH450009	ؔ AS450003	ؔ AQ010003	ؔ AH020003	
-3			# SM030000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000			ؑ ND020001	ؒ AB010000	ؓ AH450003	ؔ AD450006	ؔ AK010006	ؔ AH020004	
-4			\$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000			ؑ ND030001	ؒ AB010003	ؓ AH470008	ؔ AD450003	ؔ AK010003	ؔ AH030003	
-5			% SM020007	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000			ؑ ND040004	ؒ AP010000	ؓ AH470003	ؔ AT450000	ؔ AG010000	ؔ AX30000	
-6			& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000			ؑ ND050004	ؒ AP010003	ؓ AD010000	ؔ AZ450000	ؔ AG010003	ؔ AY320000	
-7			' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000			ؑ ND060001	ؒ AT020000	ؓ AD030003	ؔ AC470000	ؔ AL010000	ؔ AY320002	
-8			(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000			ؑ ND070004	ؒ AT010000	ؓ AD470008	ؔ AC470002	ؔ AL010006	ؔ AY320003	
-9			) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000			ؑ ND080001	ؒ AT010003	ؓ AR010000	ؔ AC470003	ؔ AI010004	ؔ AY020000
-A			*	:	J SP130000	Z LJ020000	j LJ010000	z LZ010000			ؑ ND090001	ؒ AT030000	ؓ AR030000	ؔ AC470004	ؔ AM010000	ؔ AY020002	
-B			+	;	K SP140000	[LK020000	k LK010000	{ SM060000			ؑ SP080007	ؒ AT030003	ؓ AZ010000	ؔ AG310000	ؔ AM010003	ؔ AY200003	
-C			,	<	L SP080000	\ LL020000	l LL010000	| SM070000			ؑ SP140007	ؒ AT470000	ؓ AZ210000	ؔ AG310002	ؔ AN020000	ؔ AY340000	
-D			-	=	M SP100000	] LM020000	m LM010000	}	SM140000		ؑ (SHY) SP320000	ؒ AT470003	ؓ AS010016	ؔ AG310003	ؔ AN010000	ؔ AY040000
-E			.	>	N SP110000	^ LN020000	n LN010000	~ SD150000			ؑ SP150007	ؒ AG230000	ؓ AS010003	ؔ AG310004	ؔ AN010003	ؔ AX10000	
-F			/	?	O SP120000	_ LO020000	o LO010000				ؑ AA210000	ؒ AG230003	ؓ AS230006	ؔ AF010000	ؔ AW310000	ؔ AX100004	

Figure 33.Urdu (CP01006)

Arabic Extended

Code Page 01046

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-	
-0		(SP) SP010000	0 ND100000	@ SM050000	P LP020000	' SD130000	p LP010000	ل AA310402	ـ AU050004	(RSP) SP300000	ـ ND100001	ـ AC470003	ـ AD470000	ـ SM860000	ـ AI050000		
-1		! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000	ـ SA070000	ـ AA050004	ـ AA210006	ـ ND010001	ـ AX300000	ـ AR010000	ـ AF010000	ـ AX100000		
-2		" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000	ـ SA060000	ـ AX100004	ـ AA310006	ـ ND020001	ـ AA210000	ـ AZ010000	ـ AQ010000	ـ AE050000		
-3		# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000	ـ AS010000	ـ AE050004	ـ AA310406	ـ ND030001	ـ AA310000	ـ AS010006	ـ AK010000	ـ AQ010003		
-4		\$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000	ـ AS230000	ـ AA050004	ـ SC010000	ـ ND040001	ـ AW310000	ـ AS230006	ـ AL010000	ـ AK010003		
-5		% SM020007	5 ND050000	E LE020000	U LU020000	e LE010000	ـ LU010000	ـ AS450000	ـ AY310002	ـ AA010006	ـ ND050001	ـ AA310400	ـ AS450006	ـ AM010000	ـ AL010003		
-6		& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000	ـ AD450000	ـ AA020002	ـ AY310003	ـ ND060001	ـ AY310006	ـ AD450006	ـ AN010000	ـ SM070000		
-7		' SP050000	7 ND070000	G LG020000	W LW020000	ـ LG010000	ـ LW010000	ـ AA070004	ـ AY010003	ـ AB010003	ـ ND070001	ـ AA010000	ـ AT450000	ـ AH010003	ـ AL220000		
-8		(SP060000	8 ND080000	H LH020000	X LX020000	ـ LH010000	ـ LX010000			ـ AY010002	ـ AT010003	ـ ND080001	ـ AB010000	ـ AZ450000	ـ AW010000	ـ AL320000	
-9		) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000	ـ SM470000	ـ AG310002	ـ AT470003	ـ ND090001	ـ AT020000	ـ AC470000	ـ AA020000	ـ AL320400
-A		* SM040007	:	J SP130000	Z LJ020000	j LJ010000	ـ LZ010000	ـ SF110000	ـ AG310003	ـ AG230003	ـ AS230003	ـ AT010003	ـ AG310000	ـ AY010000	ـ AL020000		
-B		+	;	K SA100000	[LK020000	k SM060000	{ LK010000	ـ SM110000	ـ SF100000	ـ AG310004	ـ AH450003	ـ SP140007	ـ AT470000	ـ AC470004	ـ AA070000	ـ AM010000	
-C		,	<	L SP080000	\ SA030000	ـ LL020000	ـ SM070000	ـ LL010000	ـ SM130000	ـ SF030000	ـ AL220003	ـ SP080007	ـ AS450003	ـ AG230003	ـ AA210002	ـ AU070000	ـ AN010003
-D		-	=	M SP100000] SA040000	m LM020000) SM080000	ـ LM010000	ـ SM140000	ـ SF010000	ـ AL320003	ـ SP320000	ـ AD450003	ـ AH450000	ـ AA310002	ـ AH010000	
-E		.	>	N SP110000	ـ SA050000	ـ LN020000	ـ SD150000	ـ LN010000	ـ SD190000	ـ SF020000	ـ AL320402	ـ AH470003	ـ AC470002	ـ AH470000	ـ AA010002	ـ AA050000	ـ AH010000
-F		/	?	O SP120000	ـ SP150000	ـ LO020000	ـ SP090000	ـ LO010000		ـ SP040000	ـ AL020003	ـ AS010003	ـ SP150007	ـ AD010000	ـ AF010003	ـ AU050000	

Figure 34.Arabic Extended (CP1046)

Latin 6 (ISO 8859-6)**Code Page 01089**

HEX DIGITS	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
1ST → 2ND ↓	0															
-0		(SP) SP010000	0 ND100000	@ SM050000	P LP020000	' SD130000	p LP010000			(RSP) SP305000			ـ AD470009	ـ SM860000	ـ AJ055009	
-1		! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000				ؑ AX300009	ؑ AR010009	ؑ AF010009	ؑ AX100009		
-2		" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000				ؔ AA210009	ؔ AZ010009	ؔ AQ010009	ؔ AE050009		
-3		# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000				؋ AA310009	؋ AS010009	؋ AK010009	؋ AL010009		
-4		\$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000			؎ SC010000		؎ AW310009	؎ AS230009	؎ AL010009		
-5		% SM020007	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000				ؑ AA310409	ؑ AS450009	ؑ AM010009	ؑ AM010009		
-6		& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000				ؓ AY310009	ؓ AD450009	ؓ AN010009	ؓ AN010009		
-7		' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000				ؑ AA010009	ؑ AT450009	ؑ AH010009	ؑ AH010009		
-8		(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000				ؒ AB010009	ؒ AZ450009	ؒ AW010009	ؒ AW010009		
-9		) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000				ؓ AT020009	ؓ AC470009	ؓ AA020009	ؓ AA020009
-A		* SM040007	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000				ؑ AT010009	ؑ AG310009	ؑ AY010009	ؑ AY010009		
-B		+\br/>SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000}				ؑ SP140007	ؑ AT470008	ؑ AA070009	ؑ AA070009		
-C		, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000				ؑ SP080007	ؑ AG230009	ؑ AU070009	ؑ AU070009		
-D		- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000				(SHY) SP320000	ؑ AH450009	ؑ AI070009	ؑ AI070009	
-E		. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000					ؑ AH470009	ؑ AA050009	ؑ AA050009		
-F		/ SP120000	? SP150000	O LO020000	— SP090000	o LO010000					ؑ SP150007	ؑ AD010009	ؑ AU050009	ؑ AU050009		

Figure 35.ISO8859/6(Latin/Arabic)

Farsi (Personal Computer)

Code Page 01098

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0 SM580000 SP010000 ND100000 SM030000 LP020000 SD130000 LP010000 AW310000 AH450003 SF140000 SF020000 AC470002 AK010005 SP320000	▶ (SP) SM050000 SP010000 ND100000 SM030000 LP020000 SD130000 LP010000 AW310000 AH450003 SF140000 SF020000 AC470002 AK010005 SP320000	0 @ SM630000 SM020000 ND010000 LA020000 LQ020000 LA010000 LQ010000 AY320003 AH470000 SF150000 SF070000 AC470003 AK010003 AY020002	!	1 A Q a q	!	2 B R b r	,	3 C S c s	:	4 D T d t	?	5 E U e u	!	6 F V f v	۶	۷ G W g w
-1 SS000000 SM630000 SP020000 ND010000 LA020000 LQ020000 LA010000 LQ010000 AY320003 AH470000 SF150000 SF070000 AC470003 AK010003 AY020002	!	۱ A Q a q	۲ B R b r	,	۳ C S c s	:	۴ D T d t	؟	۵ E U e u	۶ F V f v	۷ G W g w	۸ H X h x	۹ I Y i y	۰	۰	۱
-2 SS010000 SM760000 SP040000 ND020000 LB020000 LR020000 LB010000 LR010000 SP080007 AB010000 AH470003 SF160000 SF080000 AC470004 AG010000 AY020003	!	۱ A Q a q	۲ B R b r	,	۳ C S c s	:	۴ D T d t	؟	۵ E U e u	۶ F V f v	۷ G W g w	۸ H X h x	۹ I Y i y	۰	۱	۲
-3 SS020000 SP330000 SM010000 ND030000 LC020000 LS020000 LC010000 LS010000 SP140007 AB010003 AD010000 SF110000 SF080000 AG310000 AG010003 SM080000	!	۱ A Q a q	۲ B R b r	,	۳ C S c s	:	۴ D T d t	؟	۵ E U e u	۶ F V f v	۷ G W g w	۸ H X h x	۹ I Y i y	۰	۱	۲
-4 SS030000 SM250000 SC030000 ND040000 LD020000 LT020000 LD010000 LT010000 SP150007 AP010000 AD470000 SF090000 SF100000 AG310002 AL010000 ND100003	♦	¶ \$	۴ D T d t	۵ E U e u	۶ F V f v	۷ G W g w	۸ H X h x	۹ I Y i y	۰	۱ A Q a q	۲ B R b r	۳ C S c s	۴ D T d t	۵ E U e u	۶ F V f v	۷ G W g w
-5 SS040000 SM240000 SM020007 ND050000 LE020000 LU020000 LE010000 LU010000 AA070008 AP010003 AR010000 AD450008 SF050000 AG310003 AL010003 ND010001	♣	§ %	۵ E U e u	۶ F V f v	۷ G W g w	۸ H X h x	۹ I Y i y	۰	۱ A Q a q	۲ B R b r	۳ C S c s	۴ D T d t	۵ E U e u	۶ F V f v	۷ G W g w	۸ H X h x
-6 SS050000 SM700000 SM030000 ND060000 LF020000 LV020000 LF010000 LV010000 AA210002 AT010000 AZ010000 AD460003 AZ460002 AG310004 AM010000 ND020001	♠	- &	۶ F V f v	۷ G W g w	۸ H X h x	۹ I Y i y	۰	۱ A Q a q	۲ B R b r	۳ C S c s	۴ D T d t	۵ E U e u	۶ F V f v	۷ G W g w	۸ H X h x	۹ I Y i y
-7 SM570000 SM770000 SP050000 ND070000 LG020000 LW020000 LG010000 LW010000 AA210002 ATD10003 AZ210000 AT450001 AC470000 AF010000 AM010003 ND030001	•	↑ †	۷ G W g w	۸ H X h x	۹ I Y i y	۰	۱ A Q a q	۲ B R b r	۳ C S c s	۴ D T d t	۵ E U e u	۶ F V f v	۷ G W g w	۸ H X h x	۹ I Y i y	۰
-8 SM570001 SM320000 SP060000 ND080000 LH020000 LX020000 LH010000 LX010000 AA210005 AT470000 AS010006 AT450002 SF380000 AF010003 AN010000 ND040003	█	↑ (	۸ H X h x	۹ I Y i y	۰	۱ A Q a q	۲ B R b r	۳ C S c s	۴ D T d t	۵ E U e u	۶ F V f v	۷ G W g w	۸ H X h x	۹ I Y i y	۰	۱
-9 SM750000 SM330000 SP070000 ND090000 LJ020000 LY020000 LJ010000 LY010000 AA010000 AT470003 AS010003 SF230000 SF390500 SF040000 AN010003 ND050004	○	↓)	۹ I Y i y	۰	۱ A Q a q	۲ B R b r	۳ C S c s	۴ D T d t	۵ E U e u	۶ F V f v	۷ G W g w	۸ H X h x	۹ I Y i y	۰	۱	۲
-A SM750002 SM310000 SM040007 SP130000 LJ020000 LQ020000 LJ010000 LQ010000 AA010002 AG230000 AS230006 SF240000 SF400000 SF010000 AW010000 ND060003	◎	→ *	: J Z j z	۱ A Q a q	۲ B R b r	۳ C S c s	۴ D T d t	۵ E U e u	۶ F V f v	۷ G W g w	۸ H X h x	۹ I Y i y	۰	۱	۲	۳
-B SM280000 SM300000 SA010000 SP140000 LK020000 SM060000 LKD010000 SM110000 AA010006 AG230003 AS230003 SF250000 SF410500 SF610000 AH010000 ND070001	♂	← + ; K k	۱ A Q a q	۲ B R b r	۳ C S c s	۴ D T d t	۵ E U e u	۶ F V f v	۷ G W g w	۸ H X h x	۹ I Y i y	۰	۱	۲	۳	۴
-C SM280000 SA420000 SP080000 SA030000 LL020000 SM070000 LL010000 SM130000 AA010005 AC210000 AS450006 SF260000 SF420000 SF570000 AH010003 ND080001	♀	₼ , < L \ l	۱ A Q a q	۲ B R b r	۳ C S c s	۴ D T d t	۵ E U e u	۶ F V f v	۷ G W g w	۸ H X h x	۹ I Y i y	۰	۱	۲	۳	۴
-D SM930000 SM780000 SP100000 SA040000 LM020000 SM080000 LM010000 SM140000 AA310000 AC210003 AS450003 SC160000 SF430500 AQ010000 AH010004 ND090001	♫	↔ - = M] m	۱ A Q a q	۲ B R b r	۳ C S c s	۴ D T d t	۵ E U e u	۶ F V f v	۷ G W g w	۸ H X h x	۹ I Y i y	۰	۱	۲	۳	۴
-E SM910000 SM800000 SP110000 SA050000 LN020000 SD150000 LN010000 SD180000 AA310002 SA070000 SP170000 AZ450001 SF440000 AQ010003 AH210000 SM470000	♪	▲ + > N ^ n	۱ A Q a q	۲ B R b r	۳ C S c s	۴ D T d t	۵ E U e u	۶ F V f v	۷ G W g w	۸ H X h x	۹ I Y i y	۰	۱	۲	۳	۴
-F SM680000 SM690000 SP120000 SP150000 LO020000 SP080000 LO010000 SM780000 AA310006 AH450000 SP180000 SF030000 SF600000 AY020000 SP300000 (RSP)	☀	▼ / ? O _ o	۱ A Q a q	۲ B R b r	۳ C S c s	۴ D T d t	۵ E U e u	۶ F V f v	۷ G W g w	۸ H X h x	۹ I Y i y	۰	۱	۲	۳	۴

Figure 36.Farsi(CP1098)

Estonian (Personal Computer)

Code Page 01116

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0	► (SP) SM980000	0 (SP) SP010000	@ (ND) ND100000	P (SM) SM050000	` (LP) LP020000	p (SD) SD130000	ç (LP) LP010000	ç (LC) LC420000	é (LE) LE120000	á (LA) LA110000	sf (SF) SF140000	l (SF) SF020000	š (LS) LS210000	ó (LO) LO120000	(SHY) SP320000	
-1	! (SS) SM830000	! (SM) SP020000	1 (ND) ND100000	A (LA) LA025000	Q (LQ) LQ020000	a (LA) LA010000	q (LQ) LQ010000	ü (LU) LU170000	æ (LA) LA510000	í (LI) LI110000	sf1 (SF) SF150000	l (SF) SF070000	š (LS) LS220000	ß (LS) LS100000	± (SA) SA020000	
-2	! (SS) SS010000	! (SM) SM780000	! (SP) SP040000	2 (ND) ND200000	B (LB) LB020000	R (LR) LR020000	b (LB) LB010000	r (LR) LR010000	é (LE) LE110000	æ (LA) LA820000	ó (LO) LO110000	sf1 (SF) SF180000	l (SF) SF080000	è (LE) LE160000	ö (LO) LO180000	= (SM) SM100000
-3	! (SS) SS020000	! (SP) SP330000	# (SM) SM010000	3 (ND) ND300000	C (LC) LC020000	S (LS) LS020000	c (LC) LC010000	s (LS) LS010000	â (LA) LA150000	ô (LO) LO150000	ú (LU) LU110000	sf1 (SF) SF100000	l (SF) SF090000	ë (LE) LE180000	ö (LO) LO140000	¼ (NF) NF050000
-4	♦ (SS) SS030000	♦ (SM) SM250000	\$ (SC) SC030000	4 (ND) ND400000	D (LD) LD020000	T (LT) LT020000	d (LD) LD010000	t (LT) LT010000	ää (LA) LA170000	ö (LO) LO170000	ñ (LN) LN190000	sf0 (SF) SF080000	l (SF) SF100000	è (LE) LE140000	ö (LO) LO190000	¶ (SM) SM250000
-5	♣ (SS) SS040000	§ (SM) SM240000	% (SM) SM020000	5 (ND) ND500000	E (LE) LE020000	U (LU) LU020000	e (LE) LE010000	u (LU) LU010000	à (LA) LA130000	ò (LO) LO130000	ñ (LN) LN200000	á (LA) LA200000	l (SF) SF050000	i (LI) LI010000	ö (LO) LO200000	§ (SM) SM240000
-6	♠ (SS) SS050000	- (SM) SM030000	& (ND) ND060000	6 (LF) LF020000	F (LV) LV020000	V (LF) LF010000	f (LV) LV010000	v (LA) LA270000	å (LU) LU150000	û (SM) SM210000	â (LA) LA190000	ä (LA) LA190000	í (LI) LI120000	µ (SM) SM170000	÷ (SA) SA060000	
-7	• (SM) SM570000	! (SM) SM770000	' (SP) SP050000	7 (ND) ND070000	G (LG) LG020000	W (LW) LW020000	g (LG) LG010000	w (LW) LW010000	ç (LC) LC410000	ù (LU) LU130000	sm (SM) SM200000	â (LA) LA140000	ä (LA) LA200000	í (LI) LI180000	ž (LZ) LZ210000	÷ (SD) SD410000
-8	□ (SM) SM570001	↑ (SM) SM320000	((SP) SP060000	8 (ND) ND080000	H (LH) LH020000	X (LX) LX020000	h (LH) LH010000	x (LX) LX010000	ê (LE) LE150000	ÿ (LY) LY170000	sp1 (SP) SP160000	sm5 (SM) SM520000	l (SF) SF380000	í (LI) LI180000	ž (LZ) LZ220000	° (SM) SM180000
-9	○ (SM) SM750000	↓ (SM) SM330000	) (SP) SP070000	9 (ND) ND090000	I (LI) LI020000	Y (LY) LY020000	i (LI) LI010000	y (LY) LY010000	ë (LE) LE170000	ö (LO) LO180000	® (SM) SM530000	ñ (SF) SF210000	l (SF) SF390000	ú (SF) SF040000	” (LU) LU120000	” (SD) SD170000
-A	○ (SM) SM750002	→ (SM) SM310000	* (SM) SM040000	:	J (LJ) LJ020000	Z (LZ) LZ020000	j (LJ) LJ010000	z (LZ) LZ010000	è (LE) LE130000	ü (LU) LU180000	sm6 (SM) SM680000	ñ (SF) SF240000	l (SF) SF400000	û (SP) SP010000	ö (LU) LU160000	• (SD) SD630000
-B	♂ (SM) SM280000	← (SM) SM300000	+	;	K (LK) LK020000	[(SM) SM060000	k (LK) LK010000	{ (SM) SM110000	í (LI) LI170000	ø (LO) LO610000	½ (NF) NF040000	ñ (SF) SF230000	l (SF) SF410000	ù (SF) SF610000	ü (LU) LU140000	1 (ND) ND011000
-C	♀ (SM) SM290000	, (SA) SA020000	< (SP) SP060000	;	L (LL) LL020000	\ (SM) SM070000	l (LL) LL010000	| (SM) SM130000	î (LI) LI150000	£ (SC) SC020000	¼ (NF) NF040000	ñ (SF) SF250000	l (SF) SF420000	ý (SF) SF570000	3 (LY) LY110000	ND031000
-D	♪ (SM) SM930000	↔ (SM) SM780000	- (SP) SP100000	= (SA) SA040000	M (LM) LM020000	] (SM) SM080000	m (LM) LM010000	) (SM) SM140000	ì (LI) LI130000	ø (LO) LO620000	sp2 (SP) SP030000	ñ (SC) SC040000	l (SF) SF430000	ü (SM) SM850000	” (LY) LY120000	” (ND) ND021000
-E	♪ (SM) SM910000	▲ (SM) SM800000	. (SP) SP110000	> (SA) SA050000	N (LN) LN020000	^ (SD) SD150000	n (LN) LN010000	~ (SD) SD190000	ää (LA) LA180000	× (SA) SA070000	sp17 (SP) SP170000	ñ (SC) SC050000	l (SF) SF440000	í (LI) LI140000	— (SM) SM150000	■ (SM) SM470000
-F	☀ (SM) SM690000	▼ (SV) SV040000	/ (SP) SP120000	? (SP) SP150000	O (LO) LO020000	— (SP) SP060000	o (LO) LO010000	◊ (SM) SM780000	å (LA) LA280000	f (SC) SC070000	sp18 (SP) SP180000	ñ (SF) SF030000	l (SC) SC010000	’ (SF) SF600000	’ (SD) SD110000	(RS) SP300000

Figure 37.Estonian (CP1116)

Latvian (Personal Computer)

Code Page 01117

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0	► (SP) SM580000	0 ND100000 SP010000	@ SM050000 LP020000	P SD130000 LP010000	' LC120000 LC020000	p LQ010000 LQ020000	Ć LU170000 LU100000	É LQ100000 LQ130000	Ā LA120000 LA320000	SF140000 SF020000	□ SF070000 SF460000	■ SF480000 SF120000	Ó (SHY) SP320000			
-1	☺ SS000000 SM630000	! SP020000 ND610000	1 LA020000 ND600000	A LQ020000 LC010000	Q LQ010000 LQ030000	a LU170000 LU100000	ü LQ100000 LQ130000	Ž LQ120000 LQ150000	Ī LQ200000 LJ320000	SF150000 SF070500	— SF470000 SF140000	— LS610000 SA620000	Ā LS610000 SA620000		Ā	±
-2	☺ SS010000 SM780000	↑ SP040000 ND620000	2 LB020000 LC020000	B LR020000 LB010000	R LB010000 LR010000	b LR010000 LB010000	r LE110000 LE120000	é LQ110000 LQ120000	ž LQ120000 LQ150000	ó LO110000 LO120000	— SF160000 SF080300	— SF480000 SF120000	— LO320000 LA810000	Ā LO320000 LA810000	Ā	æ
-3	♥ SS020000 SP330000	!! SM010000 ND030000	# ND010000 LC020000	3 LC020000 LS020000	C LS020000 LC010000	S LS010000 LS020000	c LA310000 LA320000	ā LS010000 LS020000	ō LU430000 LU440000	— SF110000 SF080300	— SF490000 SF100500	— SF500000 SF100500	— LN120000 LA620000	Ā LN120000 LA620000	Ā	Æ
-4	♦ SS030000 SM250000	¶ SC030000 ND040000	\$ LD020000 LT020000	4 LD010000 LT020000	D LT020000 LD010000	T LD010000 LT010000	d LT010000 LD010000	ä LA170000 LA180000	ö LA170000 LA440000	— SF090000 SF100500	— SF100500 SF100500	— SF500000 SF100500	— LO190000 SM250000	— LO190000 SM250000	—	¶
-5	♣ SS040000 SM240000	§ SM020000 ND050000	% ND020000 IE020000	5 IE020000 LU020000	E LU020000 IE010000	U LU010000 IE010000	e LU010000 IE010000	ú LG410000 LG420000	g LG420000 LA430000	— SF190000 SF050500	— SF050500 SF510000	— SF510000 LO200000	— LO200000 SC010000	— LO200000 SC010000	—	○
-6	♠ SS050000 SM700000	— SM030000 ND060000	& ND050000 LF020000	6 LF020000 LV020000	F LV020000 LF010000	V LF010000 LV010000	f LV010000 LA270000	å LU310000 LU320000	ü LU310000 LU320000	— SF200000 SF380300	— SF380300 SF520000	— SF520000 LS220000	— LS220000 SA660000	— LS220000 SA660000	—	÷
-7	● SM570000 SM770000	↑ SM070000 ND070000	' LG020000 LW020000	7 LG020000 LW020000	G LW020000 LG010000	W LG010000 LW010000	g LW010000 LC110000	ć LC110000 LS120000	š LS120000 LZ210000	— SF210000 SF370500	— SF370500 SF530000	— SF530000 LS210000	— LS210000 LO610000	— LS210000 LO610000	—	ø
-8	▣ SM570001 SM320000	↑ SM080000 ND080000	(LH020000 LX020000	8 LH020000 LX020000	H LX020000 LH010000	X LH010000 LX010000	h LX010000 LL810000	ł LL810000 LS110000	ś LS110000 LE440000	— SF220000 SF380300	— SF380300 SF540000	— SF540000 LK420000	— K LK420000 SM180000	— K LK420000 SM180000	—	○
-9	○ SM750000 SM330000	↓ SM070000 ND090000	) LI020000 LY020000	9 LI020000 LY020000	I LY020000 LI010000	Y LY010000 LY010000	i LY010000 LE310000	ē LE310000 LO180000	ö LE430000 LE440000	— SF230000 SF380200	— SF380200 SF404000	— SF404000 LK410000	— k LK410000 LO620000	— k LK410000 LO620000	—	ø
-A	Ⓐ SM750002 SM310000	→ SM040000 SP130000	* LJ020000 LJ020000	: J LJ020000 LJ010000	J LJ020000 LJ010000	Z LJ010000 LZ010000	j LZ010000 LE290000	é LE290000 LU180000	ü LU180000 LE300000	— SF240000 SF400300	— SF400300 SF010000	— SF010000 LU320000	— U LU320000 SD630000	— U LU320000 SD630000	—	·
-B	♂ SM280000 SM300000	← SM010000 SP140000	+ SA010000 LK020000	; K LK020000 SM060000	K LK020000 SM060000	[LK010000 SM110500	k SM110500 LI430000	{ LI430000 LN110000	ł LN110000 LZ110000	— SF250000 SF410500	— SF410500 SF610000	— SF610000 LU440000	— U LU440000 LR410000	— U LU440000 LR410000	—	Ł
-C	♀ SM290000 SA420000	, SP080000 SA030000	< SA030000 LL020000	L SM070000 SM070000	L LL010000 SM130500	\ SM070000 LI310000	I SM130500 LL420000	| LI310000 LC220000	ł LC220000 LZ120000	— SF260000 SF420500	— SF420500 SF570000	— SF570000 LL410000	— R LL410000 LR420000	— R LL410000 LR420000	—	Ł
-D	♫ SM830000 SM780000	↔ SP100000 SA040000	- SA040000 LM020000	= SM080000 LM010000	M LM020000 LM010000	] SM080000 LM140500	m LM140500 LZ120000	} LM140500 LL820000	ž LL820000 LJ440000	— SF270000 SF430300	— SF430300 SF580000	— SF580000 LE320000	— E LE320000 SP230000	— E LE320000 SP230000	—	”
-E	♪ SM910000 SM800000	. SP110000 SA050000	> LN020000 SD150000	N LN020000 SD150000	N SD150000 LN010000	^ SD150000 SD190000	n SD190000 LA180000	~ SD190000 SA070000	ä LA180000 SP170000	— SF280000 SF440300	— SF440300 SF590000	— SF590000 LN420000	— N LN420000 SP210000	— N LN420000 SP210000	—	”
-F	☀ SM880000 SV040000	/ SP120000 SP150000	? LO020000 LO020000	O LO020000 SP080000	O LO020000 SP080000	— LO010000 LA280000	— LO010000 LC210000	— LA280000 SP180000	å LC210000 SP180000	— SF030000 SF450300	— SF450300 SF600000	— SF600000 LN410000	— p LN410000 SP300000	— p LN410000 SP300000	—	(RSP)

Figure 38.Latvian (Personal Computer) (CP1117)

Lithuanian (Personal Computer)

Code Page 01118

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-	
-0	► (SP) SM190000	0 ND100000 SM050000	@ LP020000 LP130000	P SD130000 LP010000	' LC420000 LC010000	p LU170000 LU010000	Ç LU120000 LA110000	É LA110000 LA430000	á SF140000 SF020000	ä SF020000 LA430000	à GA010000 SA480000	α SA480000	≡				
-1	☺ SS010000	! SM830000 SM020000	1 ND100000 LA020000	A LQ020000 LR010000	Q LQ010000 LU170000	a LU010000 LA510000	q LU170000 LA110000	ü LU120000 LU110000	æ SF150000 SF070000	í SF150000 LC210000	č SF070000 GB010000	þ GB010000 SA020000	±				
-2	☻ SS010000	↑ SM780000 SM040000	" ND120000 LB020000	2 LR020000 LB010000	B LR010000 LB010000	R LR010000 LE110000	b LE110000 LA520000	r LE110000 LA110000	é SF160000 SF080000	ó SF160000 SF080000	ø SF080000 LE430000	é SF080000 GG020000	≥ SA530000				
-3	♥ SS020000 SP330000	!! SM010000 ND030000	# ND030000 LC020000	3 LC020000 LS020000	C LS020000 LC010000	S LS020000 LS010000	c LS010000 LA150000	s LA150000 LO150000	â LU100000 LU100000	ô LU100000 LU190000	ú SF110000 SF090000	é SF090000 LE290000	π GP010000 SA520000	≤ SA520000			
-4	♦ SS030000 SM250000	¶ SC030000 ND040000	\$ ND040000 LD020000	4 LD020000 LT020000	D LT020000 LD010000	T LT010000 LA170000	d LT010000 LA170000	t LA170000 LO170000	ä LN190000 LN190000	ö LN190000 LN200000	ñ SF090000 SF100000	í SF100000 LI430000	Σ GS020000 SP230000	" SP230000			
-5	♣ SS040000 SM240000	§ SM020000 ND050000	% ND050000 LE020000	5 LE020000 LU020000	E LU020000 LE010000	U LU010000 LU010000	e LU010000 LA130000	u LU010000 LO130000	à LN200000 LA440000	ò LN200000 LA440000	ň SF050000 LS210000	š SF050000 GS010000	σ GS010000 SP210000	" SP210000			
-6	♠ SS050000 SM700000	- SM030000 ND060000	& ND060000 LF020000	6 LF020000 LV020000	F LV020000 LF010000	V LV010000 LA270000	f LV010000 LU150000	v LA270000 LU150000	å SM210000 LC220000	û SM210000 LU440000	ä SF140000 LU430000	ç SF140000 SM170000	ú SF140000 SA080000	÷ SA080000			
-7	● SM570000 SM770000	↑ SM050000 ND070000	' ND070000 LG020000	7 LG020000 LW020000	G LW020000 LG010000	W LW010000 LG010000	g LW010000 LC410000	w LW010000 LU130000	ç SM200000 SM200000	ù SM200000 LE440000	ä SF160000 LU320000	é SF160000 LU310000	ú SF160000 GT010000	≈ SA700000			
-8	▣ SM570001 SM320000	↑ SM060000 ND080000	(ND080000 LH020000	8 LH020000 LX020000	H LX020000 LH010000	X LH010000 LX010000	h LX010000 LE150000	x LE150000 LY170000	é SF160000 SF160000	ÿ SF160000 LE300000	é SF160000 SF380000	ž SF160000 LZ210000	ž SF160000 GP020000	Φ SF160000 SM180000	○ SM180000		
-9	○ SM750000 SM330000	↓ SM070000 ND090000	) ND090000 LJ020000	9 LJ020000 LY020000	I LY020000 LJ010000	Y LJ010000 LY010000	i LY010000 LE170000	y LE170000 LO180000	ö SM680000 SM680000	ö SF210000 SF390000	ö SF210000 SF390000	ö SF040000 GT820000	ö GT820000 SA790000	*		
-A	Ⓐ SM750002 SM310000	→ SM040000 SP130000	* SP130000 LJ020000	: LJ020000 LZ020000	J LZ020000 LJ010000	Z LZ010000 LZ010000	j LZ010000 LE130000	z LE130000 LU180000	ë SM680000 NF010000	ë SF240000 SF230000	ë SF240000 SF410000	ë SF240000 SF410000	Ω SF010000 GO320000	Ω GO320000 SD290000	*		
-B	♂ SM280000 SM300000	← SM010000 SA010000	+ SA010000 SP140000	;	K LK020000 SM080000	[LK020000 SM080000	k LK010000 SM110000	{ SM110000 LI170000	í SC040000 SC040000	í NF010000 SF010000	í NF010000 SF280000	í NF010000 SF420000	í NF010000 SF570000	δ SA080000 SA450000	✓ SA080000 LN011000		
-C	♀ SM290000 SA420000	, SP060000 SA030000	< SA030000 LL020000	L SM070000 SM070000	L LL020000 SM130000	\ LL010000 SM130000	l LL010000 LI150000	| LI150000 SC020000	í SC020000 NF040000	í SF280000 SF280000	í SF280000 SF420000	í SF280000 SF570000	∞ SA450000 LN011000	n LN011000			
-D	♫ SM930000 SM780000	↔ SP100000 SA040000	- SA040000 LM020000	= LM020000 SM080000	M SM080000 LM010000	] LM010000 SM140000	m LM010000 LI130000	) LI130000 SC050000	ì SP030000 SC050000	ì SP030000 LI440000	ì SP030000 SF430000	ì SP030000 SF560000	φ SF010000 ND021000	2 ND021000		
-E	♪ SM910000 SM600000	. SP110000 SA050000	> SA050000 LN020000	N LN020000 SD150000	^ SD150000 LN010000	~ SD190000 LA180000	n SD190000 LA180000	~ LA180000 SC080000	ä SP170000 SC080000	ä SP170000 SP170000	ä SP170000 LS220000	ä SP170000 SF440000	ä SP170000 SF590000	ε GE010000 SM470000			
-F	☀ SM690000 SV040000	▼ SP120000 SP150000	/ SP150000 LO020000	? LO020000 SP080000	O SP080000 LO010000	- SM790000 LA260000	o SM790000 LA260000	◊ SC070000 SC070000	f SP180000 SP180000	f SP180000 SF030000	f SP180000 LZ220000	f SP180000 SF600000	f SP180000 SA140000	(RSP) SA140000 SP300000			

Figure 39.Lithuanian (Personal Computer) (CP1118)

Central Europe Latin 2

Code Page 01250

HEX DIGITS	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-		
1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-		
-0			(SP) SP010000	0 ND100000	@ SM050000	P LP020000	' SD130000	p LP010000	€ SC200000		(RSP) SP300000	º SM190000	Ŕ LR120000	Đ LD600000	í LR110000	đ LD610000		
-1			! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000		‘ SP190000	ˇ SD210000	± SA020000	Á LA120000	Ñ LN120000	á LA110000	ń LN110000		
-2			" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000	,	” SP200000	„ SD230000	„ SD430000	Â LA160000	Ñ LN220000	â LA150000	ň LN210000		
-3			# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000		“ SP210000	Ł LL620000	ł LL610000	Ă LA240000	Ó LO120000	ă LA230000	ó LO110000		
-4			\$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000	” SP230000	” SP220000	” SC010000	” SD110000	Ä LA180000	Ô LO160000	ä LA170000	ô LO150000		
-5			% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000	... SV520000	• SM570000	À LA440000	µ SM170000	Ĺ LL120000	Ő LC260000	í LL110000	ő LC250000		
-6			& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000	† SM340000	— SS680000	— SM650000	¶ SM250000	Ć LC120000	Ö LO180000	ć LC110000	ö LO170000		
-7			' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000	‡ SM350000	— SM900000	— SM240000	§ SD630000	Ç LC420000	× SA070000	ç LC410000	÷ SA060000		
-8			(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000			” SD170000	” SD410000	” LC220000	Č LR220000	Ř LC210000	č LR210000		
-9			) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000	% SM560000	TM SM540000	◎ SM520000	ą LA430000	É LE120000	Ú LU280000	é LE110000	ú LU270000
-A			*	:	J SM040000	Z SP130000	j LJ020000	z LZ020000	{ LK010000	{ LK010000	< SM110000	> SP270000	<< SP170000	>> SP180000	Ę LE180000	Ü LU260000	ę LE170000	ü LU250000
-B			+	;	K SA010000	[SP140000	k LK020000	{ SM060000	< LK010000	< SM110000	> SP280000	<< SP170000	>> SP180000	Ę LE180000	Ü LU260000	ę LE170000	ü LU250000	
-C			,	<	L SP080000	\ SA030000	l LL020000	ſ SM070000	| LL010000	ſ SM130000	ſ LS120000	ſ LS110000	ſ SM660000	Ł LL220000	Ę LE220000	Ü LU180000	ě LE210000	ü LU170000
-D			-	=	M SP100000] SA040000	m LM020000) SM080000	ſ LM010000	ſ SM140000	ſ LT220000	ſ LT210000	ſ SP320000	” SO250000	Í LI120000	Ý LY120000	í LI110000	ý LY110000
-E			.	>	N SP110000	^ SA050000	n LN020000	~ SD150000	~ LN010000	~ SD190000	ž LZ220000	ž LZ210000	ž SM530000	® LL210000	Í LI160000	Î LT420000	Ț LI150000	î LT410000
-F			/	?	O SP120000	— SP150000	o LO020000	ž SP090000	o LO010000	ž LZ120000	ž LZ110000	ž LZ300000	ž LZ290000	ž LD220000	Đ LS610000	Ђ LD210000	*	đ SD290000

Figure 40.CentralEurope(CP1250)

Cyrillic Windows + euro**Code Page 01251**

HEX DIGITS	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-		
1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-		
-0		(SP) SP010000	0 ND100000	@ SM050000	P LP020000	' SD130000	p LP010000	Ђ KD620000	ђ KD610000	(RSIP) SP300000	° SM190000	А KA020000	Р KR020000	а KA010000	р KR010000			
-1		! SP020000	1 ND010000	А LA020000	Q LQ020000	а LA010000	q LQ010000	Ѓ KG120000	‘ SP190000	Ў KU240000	± SA020000	Б KB020000	С KS020000	б KB010000	с KS010000			
-2		" SP040000	2 ND120000	В LB020000	Р LR020000	б LB010000	г LR010000	,	‘ SP260000	Ѕ SP200000	І KU230000	В KJ120000	Т KV020000	т KT020000	т KV010000	т KT010000		
-3		# SM010000	3 ND030000	С LC020000	S LS020000	с LC010000	ſ LS010000	ѓ KG110000	“ SP210000	Ј KJ020000	і KJ110000	Г KG020000	У KU020000	г KG010000	у KU010000			
-4		\$ SC030000	4 ND040000	Д LD020000	Т LT020000	д LD010000	т LT010000	” SP230000	” SP220000	Ѡ SC010000	г KG290000	Д KD020000	Ф KF020000	д KD010000	ф KF010000			
-5		% SM020000	5 ND050000	Е LE020000	У LU020000	е LE010000	у LU010000	… SV520000	● SM570000	Г KG300000	μ SM170000	Е KE020000	Х KH020000	е KE010000	х KH010000			
-6		& SM030000	6 ND060000	Ғ LF020000	Ѷ LW020000	ғ LF010000	ѷ LW010000	ڰ SM340000	ڰ SM680000	ڰ SM650000	ڰ SM250000	Җ KZ220000	Җ KC020000	Җ KZ210000	Җ KC010000			
-7		' SP050000	7 ND070000	Ԍ LG020000	Ѷ LW020000	Ԍ LG010000	Ѷ LW010000	ڰ SM350000	ڰ SM900000	ڰ SM240000	ڰ SD630000	Ӡ KZ020000	Ӡ KC220000	Ӡ KZ010000	Ӡ KC210000			
-8		(SP060000	8 ND080000	Ҥ LH020000	Ҳ LX020000	Ҥ LH010000	Ҳ LX010000	€ SC200000		Ӣ KE180000	Ӣ KE170000	Ӣ KJ020000	Ӣ KJ010000	Ӣ KS220000	Ӣ KS210000			
-9		) SP070000	9 ND090000	Ӥ LJ020000	Ӯ LY020000	Ӯ LJ010000	Ӯ LY010000	% SM560000	TM SM540000	Ӯ SM520000	Nº SM000000	Ӯ KJ120000	Ӯ KS160000	Ӯ KJ110000	Ӯ KS150000	
-A		*	:	J SM040000	Z SP130000	j LJ020000	z LJ010000	Љ KL420000	Љ KL410000	€ KE160000	€ KE150000	Ҝ KK020000	Ҝ KK010000	ҝ KU220000	ҝ KU210000			
-B		+	;	K SA010000	[SP140000	k LK020000	{ SM060000	ل LK010000	ل SM110000	< SP270000	> SP280000	« SP170000	» SP180000	Ӆ KL020000	Ӆ KL010000	Ӆ KY020000	Ӆ KY010000	
-C		,	<	L SP080000	\ SA030000	ل LL020000	{ SM070000	ل LL010000	ل SM130000	ن KN120000	ن KN110000	ڶ SM660000	ڶ KJ010000	ڶ KM020000	ڶ KM010000	ڶ KK120000	ڶ KK110000	
-D		-	=	M SP100000] SA040000	m LM020000	}	م SM080000	م LM010000	م SM140000	ك KK120000	ك KK110000	(SHY) SP320000	S KZ160000	H KN020000	Э KE140000	Н KN010000	Э KE130000
-E		.	>	N SP110000	ن SA050000	n LN020000	ـ SD150000	ن LN010000	ـ SD190000	ـ KC120000	ـ KC110000	ـ SM530000	ـ KZ150000	ـ KO020000	ـ KO160000	ـ KO010000	ـ KU150000	
-F		/	?	O SP120000	و SP150000	o LO020000	ـ SP090000	و LO010000	ـ KG220000	ـ KG210000	ـ KJ180000	ـ KJ170000	ـ KP020000	ـ KA160000	ـ KP010000	ـ KA150000		

Figure 41.Cyrillic(CP1251)

Latin1 Ansi Windows

Code Page 01252

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0	
00					0	@	P	`	p	€			°	À	Ð	à	ð
01			!	1	A	Q	a	q		`	i	±	Á	Ñ	á	ñ	
02			"	2	B	R	b	r	-	‘	ç	²	À	ò	â	ð	
03			#	3	C	S	c	f	”	£	³	Ã	ó	ã	ó	ó	
04			\$	4	D	T	d	t	“	¤	’	Ã	ö	ä	ö	ö	
05			%	5	E	U	e	u	-	•	¥	µ	À	ö	a	ö	
06			&	6	F	V	f	v	†	-	ı	™	È	ö	æ	ö	
07			'	7	G	W	g	w	‡	-	§	.	ç	x	ç	+	
08			(	8	H	X	h	x	^	~	”	,	È	ø	è	ø
09			)	9	I	Y	i	y	%	™	ø	¹	É	Ù	é	ù
0A			*	:	J	Z	j	z	š	š	æ	º	È	Ù	é	ú	
0B			+	;	K	[	k	{	<	>	«	»	È	Ù	ë	û
0C			,	<	L	\	l	|	€	œ	¬	ќ	í	Ù	í	ü	
0D			-	=	M	]	m	}			-	ќ	í	Ù	í	ý
0E			.	>	N	^	n	~	ž	ž	®	ќ	í	Ù	í	þ	
0F			/	?	O	_	o	|	¥	—	ž	í	Ù	í	ÿ	ÿ	

Figure 42.Latin1AnsiWindows(CP1252)

Greek Windows

Code Page 01253

	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
0	0	0	@	P	p	€			°	Ń	Ń	Ń	Ń	Ń
1	!	1	A	Q	a	q	'	^	±	Ń	Ń	Ń	Ń	Ń
2	"	2	B	R	b	r	-	'	Ń	Ń	Ń	Ń	Ń	Ń
3	#	3	C	S	c	s	f	"	Ń	Ń	Ń	Ń	Ń	Ń
4	\$	4	D	T	d	t	"	"	Ń	Ń	Ń	Ń	Ń	Ń
5	%	5	E	U	e	u	-	•	Ń	Ń	Ń	Ń	Ń	Ń
6	&	6	F	V	f	v	Ń	-	Ń	Ń	Ń	Ń	Ń	Ń
7	'	7	G	W	g	w	Ń	-	Ń	Ń	Ń	Ń	Ń	Ń
8	(	8	H	X	h	x		"	Ń	Ń	Ń	Ń	Ń	Ń
9	)	9	I	Y	i	y	Ń	"	Ń	Ń	Ń	Ń	Ń	Ń
A	*	:	J	Z	j	z			Ń	Ń	Ń	Ń	Ń	Ń
B	+	;	K	[	k	{	<	>	Ń	Ń	Ń	Ń	Ń	Ń
C	,	<	L	\	l	|			Ń	Ń	Ń	Ń	Ń	Ń
D	-	=	M	]	m	}			Ń	Ń	Ń	Ń	Ń	Ń
E	.	>	N	^	n	~			Ń	Ń	Ń	Ń	Ń	Ń
F	/	?	O	_	o				Ń	Ń	Ń	Ń	Ń	Ń

Figure 43.GreekWindows(CP1253)

Turkish Windows

Code Page 01254

	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
0	0	@	P	'	p	€			°	À	Ã	à	ã	
1	!	1	A	Q	a	q		'	i	±	À	Ñ	á	ñ
2	"	2	B	R	b	r	-	'	¢	²	À	ò	â	ô
3	#	3	C	S	c	s	f	"	£	³	À	ó	â	ô
4	\$	4	D	T	d	t	"	"	¤	'	À	ó	ä	ö
5	%	5	E	U	e	u	-	•	¥	µ	À	õ	â	õ
6	&	6	F	V	f	v	t	-	|	¶	È	ö	æ	ö
7	'	7	G	W	g	w	#	-	s	•	Ç	x	ç	÷
8	(	8	H	X	h	x	^	~	"	,	È	Ø	è	ø
9	)	9	I	Y	i	y	%	™	®	¹	É	Ù	é	ù
A	*	:	J	Z	j	z	š	š	¤	¤	Ê	Ú	é	ú
B	+	;	K	[	k	{	<	>	«	»	È	Ó	ë	û
C	,	<	L	\	l	|	Œ	œ	¬	¾	Ì	Ù	í	ú
D	-	=	M	]	m	}			-	¾	Í	Ì	í	í
E	.	>	N	^	n	~			®	¾	Í	§	í	§
F	/	?	O	_	o		Ý	-	¿	Ý	ß	Ý	ý	

Figure 44.TurkishWindows(CP1254)

Hebrew Windows

Code Page 01255

	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
0	Ø	Ø	P	‘	p	€			°	:	I	K	়	
1	!	1	A	Q	a	q			±	„	‘	়	০	
2	”	2	B	R	b	r	‘	’	¢	²	„	‘	়	ঽ
3	#	3	C	S	c	s	f	”	£	³	„	:	়	ঽ
4	\$	4	D	T	d	t	“	”	₪	‘	„	॥	হ	প
5	%	5	E	U	e	u	-	•	¥	μ	„	্য	ি	়
6	&	6	F	V	f	v	†	-	I	¶	„	্য	ি	়
7	'	7	G	W	g	w	‡	-	§	•	-	‘	়	ঽ
8	(8	H	X	h	x	^	~	„	„	-	”	ৰ	ৱ
9)	9	I	Y	i	y	%	™	©	۱	-	‘	়	ঽ
A	*	:	J	Z	j	z			x	÷		‘	়	ঽ
B	+	;	K	[k	{	<	>	«	»	„	‘	়	ঽ
C	,	<	L	\	l		-	‡	-	-	-	‘	়	ঽ
D	-	=	M]	m	}	-	‡	-	-	-	‘	়	ঽ
E	.	>	N	^	n	~	®	‡	-	-	-	‘	়	ঽ
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Figure 45. HebrewWindows(CP1255)

Arabic Windows

Code Page 01256

	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
0	Ø	Ø	P	‘	p	€	݂	܂	܃	܄	܅	܆	܇	=
1	!	1	A	Q	a	݁	݂	݃	݄	݅	݆	݇	݈	݉
2	”	2	B	R	b	݁	݂	݃	݄	݅	݆	݇	݈	݉
3	#	3	C	S	c	݁	݂	݃	݄	݅	݆	݇	݈	݉
4	\$	4	D	T	d	݁	݂	݃	݄	݅	݆	݇	݈	݉
5	%	5	E	U	e	݁	݂	݃	݄	݅	݆	݇	݈	݉
6	&	6	F	V	f	݁	݂	݃	݄	݅	݆	݇	݈	݉
7	'	7	G	W	g	݁	݂	݃	݄	݅	݆	݇	݈	݉
8	(	8	H	X	h	݁	݂	݃	݄	݅	݆	݇	݈	݉
9	)	9	I	Y	i	݁	݂	݃	݄	݅	݆	݇	݈	݉
A	*	:	J	Z	j	݁	݂	݃	݄	݅	݆	݇	݈	݉
B	+	;	K	[	k	݁	݂	݃	݄	݅	݆	݇	݈	݉
C	,	<	L	\	l	݁	݂	݃	݄	݅	݆	݇	݈	݉
D	-	=	M	]	m	݁	݂	݃	݄	݅	݆	݇	݈	݉
E	.	>	N	^	n	݁	݂	݃	݄	݅	݆	݇	݈	݉
F	/	?	O	_	o	݁	݂	݃	݄	݅	݆	݇	݈	݉

Figure 46.ArabicWindows(CP1256)

Baltic Windows

Code Page 01257

	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
0	0	@	P	'	p	€			·	Ā	Ś	ä	ś	
1	!	1	A	Q	a	q	'		±	Ī	Ń	í	ń	
2	"	2	B	R	b	r	'	¢	²	Ā	Ń	ā	ń	
3	#	3	C	S	c	s	"	£	³	Ć	Ó	ć	ó	
4	\$	4	D	T	d	t	"	¤	'	Ā	Ó	ä	ö	
5	%	5	E	U	e	u	-	•	μ	Ā	Ó	å	ø	
6	&	6	F	V	f	v	†	-	¶	¶	É	Ö	ę	ö
7	'	7	G	W	g	w	‡	-	§	'	Ē	X	ē	÷
8	(	8	H	X	h	x		Ø	ø	Č	Ų	č	ų	
9	)	9	I	Y	i	y	‰	™	©	Ľ	Ł	é	ł	
A	*	:	J	Z	j	z		Ŗ	Ŗ	Ž	Ś	ż	ś	
B	+	;	K	[	k	{	<	>	«	»	Ę	Ū	ę	ū
C	,	<	L	\	l	|	-	-	¤	¤	Ų	ğ	u	
D	-	=	M	]	m	}	--	-	¤	¤	Ž	ķ	ž	
E	.	>	N	^	n	~	-	-	®	®	Ĩ	Ž	ĩ	ž
F	/	?	O	_	o		,	,	Æ	Æ	Ļ	Բ	լ	.

Figure 47.Baltic Windows (CP1257)

MAZOWIA (Polish)

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00	Ø	►		0	@	P	'	p	Ç	£	ż	„	L	„	α	≡
01	⊕	◀	!	1	A	Q	a	q	ü	ę	ż	„	Ł	Ł	ß	±
02	⊕	†	"	2	B	R	b	r	é	ł	ó	„	T	T	Γ	Σ
03	♥	!!	#	3	C	S	c	s	â	ô	ó	|	†	„	π	≤
04	♦	¶	\$	4	D	T	d	t	ä	ö	ń	†	-	Ł	Σ	†
05	♣	§	%	5	E	U	e	u	à	ć	ń	‡	†	F	σ	J
06	♣	-	&	6	F	V	f	v	ą	ő	ż	‡	‡	F	μ	÷
07	•	‡	'	7	G	W	g	w	ç	ù	ż	¶	¶	¶	τ	≈
08	■	↑	(	8	H	X	h	x	ê	ś	ż	¶	Ł	Ł	Φ	°
09	◦	↓	)	9	I	Y	i	y	ë	ö	‑	‡	F	J	θ	•
0A	□	→	*	:	J	Z	j	z	è	ł	‑	||	„	Γ	Ω	-
0B	♂	←	+	;	K	[	k	{	í	š	ż	¶	Ł	Ł	δ	¬
0C	♀	„	,	<	L	\	l	|	î	ł	ż	¶	¶	■	ø	n
0D	♪	↔	-	=	M	]	m	}	ć	¥	i	„	=	||	ø	²
0E	♫	▲	.	>	N	^	n	~	À	ś	«	„	„	||	ε	■
0F	⊗	▼	/	?	O	-	o	◊	À	ſ	»	„	„	■	ø	

Figure 48.MAZOWIA(Polish)

GOST (Russian)

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00	Ø	►	Ø	ø	R	`	r	½	ѓ	ѓ	Ӑ	Ր	ա	ր	Ӯ	
01	ø	◀	!	1	Ӑ	Ӯ	զ	՞	՚	՚	՚	Ց	Ը	Յ	Շ	
02	•	:	"	2	Վ	Ր	Ե	Ր	Ւ	Ւ	Ւ	Ց	Ե	Տ	Յ	
03	❖	!!	*	3	Ը	Ը	Ը	Ը	Ը	Ը	Ը	Ը	Ը	Ը	Ը	
04	♦	¶	s	4	Ծ	Ծ	Ծ	Ծ	Ծ	Ծ	Ծ	Ծ	Ծ	Ծ	Ծ	
05	◆	\$	%	5	Ե	Ւ	ե	ւ	՚	՚	՚	Ե	Խ	ե	՚	
06	◆	-	&	6	Ֆ	Վ	ֆ	վ	՚	՚	՚	Ց	շ	չ	՚	
07	•	ı	'	7	Գ	Վ	ց	վ	՚	՚	՚	Չ	չ	չ	՚	
08	□	†	(	8	Հ	Խ	հ	խ	՚	՚	՚	Ի	ի	մ	՚
09	◦	↓	)	9	Ի	Կ	յ	կ	՚	՚	՚	Ի	ի	յ	՚
0A	■	→	*	:	Ճ	Ճ	ճ	ճ	՚	՚	՚	Ք	ի	ճ	՚	
0B	♂	←	+	;	Կ	Ճ	կ	ճ	՚	՚	՚	Լ	Կ	ճ	՚	
0C	♀	↶	,	<	Լ	Վ	լ	վ	՚	՚	՚	Մ	Վ	մ	՚	
0D	♪	↔	-	=	Մ	Վ	մ	վ	՚	՚	՚	Ն	Վ	մ	՚	
0E	λ	▲	.	>	Ն	Վ	ն	վ	՚	՚	՚	Օ	Վ	ո	՚	
0F	*	▼	/	?	Օ	Վ	օ	վ	՚	՚	՚	Պ	Վ	յ	՚	

Figure 49.GOST(Russian)

TASS (Cyrillic)

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0	
00	0	▶	0	€	Р	`	р	А	Р	а	:	Л	॥	р	Ё		
01	Θ	◀	!	1	А	Q	а	ق	Б	С	б	:	۱	۝	س	۹	
02	●	፣	"	2	В	R	b	گ	В	Т	в	۲	۝	ت	ۢ	/	
03	♥	‼	*	3	С	S	c	س	Г	Ү	г	|	۳	ۣ	ي	\	
04	♦	π	s	4	D	T	d	ت	Д	Ф	د	|	-	۴	ۤ	/	
05	◆	\$	%	5	E	U	e	ع	Е	Х	е	|	۵	۫	خ	\	
06	◆	-	&	6	F	V	f	v	۷	Ц	خ	۶	|	۶	۪	چ	→
07	•	‡	'	7	G	W	g	w	۸	Ч	ز	۷	||	۷	ۢ	چ	←
08	□	†	(8	H	X	h	x	И	Ж	и	۸	ۤ	ۤ	ۥ	ۦ)
09	○	↓	)	9	I	Y	i	y	Й	Җ	й	۹	ۤ	ۤ	ۥ	ۦ
0A	■	→	*	:	J	Z	j	ز	К	Ҋ	ك	۰	ۤ	ۤ	ۥ	ۦ	
0B	♂	←	+	;	K	[	k	{	Л	҈	ل	۱	ۤ	ۤ	ۥ	ۦ
0C	♀	„	,	<	L	\	l	۲	М	҉	م	۲	ۤ	ۤ	ۥ	ۦ	
0D	♪	↔	-	=	M	]	m	۳	Н	҈	ن	۳	ۤ	ۤ	ۥ	ۦ
0E	♫	▲	.	>	N	^	n	۴	О	҉	و	۴	ۤ	ۤ	ۥ	ۦ	
0F	*	▼	/	?	O	_	o	۵	П	Ҋ	پ	۵	ۤ	ۤ	ۥ	ۦ	

Figure 50.TASS(Cyrillic)

UKRAINIAN (old version)

	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
0	0	о	®	Р	`	р	А	Р	а	■	Л	‡	р	€
1	!	1	А	Q	а	q	Б	С	б	■	‡	=	с	ё
2	"	2	В	R	b	r	В	Т	в	■	Т	¶	т	г
3	#	3	С	S	c	s	Г	У	г	|	†	„	у	Г
4	\$	4	Д	T	d	t	Д	Ф	А	+	-	£	φ	€
5	%	5	Е	U	е	u	Е	Х	е	=	†	ƒ	х	ε
6	&	6	F	V	f	v	Ж	Ц	ж	||	‡	г	ц	I
7	'	7	G	W	g	w	З	Ч	з	¶	†	‡	ч	i
8	(	8	H	X	h	x	И	Ш	и	¶	‡	‡	ш	‡
9	)	9	I	Y	i	y	Й	І	ї	||	‡	Ј	щ	Ч
A	*	:	J	Z	j	z	К	Ь	к	||	‡	Г	ь	
B	+	;	K	[	k	{	Л	Ы	л	¶	‡	■	ы	
C	,	<	L	\	l	|	М	Ь	м	‡	‡	■	ь	№
D	-	=	M	]	m	}	Н	Э	н	‡	=	‡	э	
E	.	>	N	^	n	~	О	Ю	о	‡	‡	‡	ю	
F	/	?	O	_	o		П	Я	п	¶	‡	■	я	

Figure 51.UKRAINIAN(oldversion)

KOI8-U (new version)

	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
0	0	@	P	'	r	-	■	=	¶	ю	п	ю	п	
1	!	1	A	Q	a	q	|	■■	||	‡	а	я	А	Я
2	"	2	B	R	b	r	Г	■■	ƒ	†	б	р	Б	Р
3	#	3	C	S	c	s	†	"	ё	Ё	ц	с	Ц	С
4	\$	4	D	T	d	t	Л	■	€	€	а	т	А	Т
5	%	5	E	U	e	u	‐	•	ƒ	‡	е	у	Е	У
6	&	6	F	V	f	v	†	"	i	I	φ	ж	Ф	Ж
7	'	7	G	W	g	w	†	‐	ѣ	ѣ	г	в	Г	В
8	(	8	H	X	h	x	Т	№	҃	҃	х	ъ	х	ъ
9	)	9	I	Y	i	y	†	™	ѣ	ѣ	и	ы	И	Ы
A	*	:	J	Z	j	z	†	—	҂	҂	й	з	И	З
B	+	;	K	[	k	{	■	»	҃	҃	к	ш	К	Ш
C	,	<	L	\	l	l	■	®	‡	‡	л	э	Л	Э
D	‐	=	M	]	m	}	■	«	ѓ	ѓ	м	щ	М	Щ
E	.	>	N	^	n	~	†	•	‡	‡	н	ч	Н	Ч
F	/	?	O	_	o	—	■	‡	©	о	ь	о	ь	

Figure 52.KOI8-U(newversion)

FARSI 1

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00	·	▶	▷	○	@	P	`	p	◦	†	ح	۰	ل	۱	۲	۳
01	⊗	◀	!	۱	A	Q	a	q	۲	۳	۴	۵	۶	۷	۸	۹
02	●	‡	"	۲	B	R	b	r	۷	۸	۹	۰	۱	۲	۳	۴
03	▼	॥	*	۳	C	S	c	s	۷	۸	۹	۰	۱	۲	۳	۴
04	♦	‡	\$	۴	D	T	d	t	۷	۸	۹	۰	۱	۲	۳	۴
05	◆	S	%	۵	E	U	e	u	۷	۸	۹	۰	۱	۲	۳	۴
06	◊	-	&	۶	F	V	f	v	۷	۸	۹	۰	۱	۲	۳	۴
07	•	‡	'	۷	G	W	g	w	۷	۸	۹	۰	۱	۲	۳	۴
08	■	†	(	۸	H	X	h	x	۷	۸	۹	۰	۱	۲	۳	۴
09	◦	↓	)	۹	I	Y	i	y	۷	۸	۹	۰	۱	۲	۳	۴
0A	■	→	*	:	J	Z	j	z	۷	۸	۹	۰	۱	۲	۳	۴
0B	♂	↔	+	;	K	[	k	{	۷	۸	۹	۰	۱	۲	۳	۴
0C	♀	L	,	<	L	\	l	l	۷	۸	۹	۰	۱	۲	۳	۴
0D	♪	*	-	=	M	]	m	}	۷	۸	۹	۰	۱	۲	۳	۴
0E	♫	▲	.	>	N	^	n	~	۷	۸	۹	۰	۱	۲	۳	۴
0F	*	▼	/	?	O	_	o	,	۷	۸	۹	۰	۱	۲	۳	۴

Figure 53. Farsi 1

FARSI 2

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0									
00	|	|	▶	|	0	|	@	|	P	|`	|	p	|.	|	،	|△	|	◀	|▲	|●	|✖				
01	|	@	|	◀	|!	|	1	|	A	|	Q	|	a	|	q	|`	|	ـ	|	ع	|	ـ	|	ـ	
02	|	•	|	፣	|	"	|	2	|	B	|	R	|	b	|	r	|`	|	ـ	|	T	|	ـ	|	J
03	|	♥	|	፤	|	#	|	3	|	C	|	S	|	c	|	s	|`	|	ـ	|	ـ	|	ـ	|	ـ
04	|	♦	|	¶	|	\$	|	4	|	D	|	T	|	d	|	t	|`	|	ـ	|	L	|	ـ	|	ـ
05	|	♣	|	S	|	%	|	5	|	E	|	U	|	e	|	u	|`	|	ـ	|	ـ	|	ـ	|	ـ
06	|	♦	|	-	|	&	|	6	|	F	|	V	|	f	|	v	|`	|	ـ	|	ـ	|	ـ	|	ـ
07	|	•	|	፣	|	'	|	7	|	G	|	W	|	g	|	w	|`	|	ـ	|	ـ	|	ـ	|	ـ
08	|	▣	|	↑	|	(	|	8	|	H	|	X	|	h	|	x	|`	|	ـ	|	ـ	|	ـ	|	ـ
09	|	◦	|	↓	|	)	|	9	|	I	|	Y	|	i	|	y	|`	|	ـ	|	ـ	|	ـ	|	ـ
0A	|	■	|	→	|	*	|	:	|	J	|	Z	|	j	|	z	|`	|	ـ	|	ـ	|	ـ	|	ـ
0B	|	♂	|	←	|	+	|	;	|	K	|	[	|	k	|	{	|`	|	ـ	|	ـ	|	ـ	|	ـ
0C	|	♀	|	L	|	,	|	<	|	L	|	\	|	l	|	ـ	|`	|	ـ	|	ـ	|	ـ	|	ـ
0D	|	♪	|	↔	|	-	|	=	|	M	|	]	|	m	|	}	|`	|	ـ	|	ـ	|	ـ	|	ـ
0E	|	♫	|	▲	|	.	|	>	|	N	|	^	|	n	|	ـ	|`	|	ـ	|	ـ	|	ـ	|	ـ
0F	|	*	|	▼	|	/	|	?	|	O	|	_	|	o	|	ـ	|`	|	ـ	|	ـ	|	ـ	|	ـ

Figure 54. Farsi 2

Kamenicky

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00	NUL		SP	0	@	P	'	p	č	é	á	„	ł	љ	α	≡
01		DC1	!	1	A	Q	a	q	ü	ž	í	„	ł	љ	β	±
02			"	2	B	R	b	r	é	ž	ó	„	T	Т	Г	ȝ
03	ETX	DC3	#	3	C	S	c	s	đ	ö	ú	ı	Ђ	љ	π	≤
04			\$	4	D	T	d	t	ä	ö	ñ	†	-	€	Σ	ƒ
05	ENQ	§	%	5	E	U	e	u	đ	ó	ň	‡	†	ƒ	σ	ј
06	ACK		&	6	F	V	f	v	†	ú	ő	‡	ƒ	ѓ	μ	÷
07	BEL		'	7	G	W	g	w	č	ú	ô	†	‡	†	τ	≈
08	BS		(	8	H	X	h	x	ě	ý	š	†	‡	†	Φ	°
09	HT		)	9	I	Y	i	y	€	ö	ř	‡	ƒ	ј	θ	•
0A	LF		*	:	J	Z	j	z	ł	ü	ř	‡	‡	ѓ	Ω	·
0B	VT	ESC	+	;	K	[	k	{	ƒ	š	ř	†	‡	■	δ	؍
0C	FF		,	<	L	\	l	|	ł	ł	њ	‡	ƒ	■	∞	॥
0D	CR		-	=	M	]	m	}	ł	ყ	;	‡	=	||	φ	²
0E	SO		.	>	N	^	n	~	ѧ	ڻ	«	‡	‡	||	ε	▪
0F	SI		/	?	O	-	o	DEL	ѧ	ڻ	»	†	‡	■	ນ	

Figure 55.Kamenicky

CWI

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00	NUL		SP	0	@	P	'	p	ç	È	á	...	L	»	α	≡
01		DC1	!	1	A	Q	a	q	ü	æ	i	...	±	¬	ß	±
02			"	2	B	R	b	r	é	Æ	ó	...	T	¶	Γ	≥
03	ETX	DC3	#	3	C	S	c	s	å	ö	ú	|	†	„	π	≤
04			\$	4	D	T	d	t	ä	ö	ñ	†	-	€	Σ	ƒ
05	ENQ	§	%	5	E	U	e	u	à	ó	Ñ	‡	†	ƒ	σ	ј
06	ACK		&	6	F	V	f	v	á	ü	‰	†	†	ƒ	μ	÷
07	BEL		'	7	G	W	g	w	ç	ú	ö	¶	†	†	τ	≈
08	BS		(	8	H	X	h	x	è	ü	ž	¶	‡	†	Φ	°
09	HT		)	9	I	Y	i	y	ë	ö	‑	‡	ƒ	‑	Θ	·
0A	LF		*	:	J	Z	j	z	è	ü	‑	‑	±	±	Ω	·
0B	VT	ESC	+	;	K	[	k	{	í	¢	¤	¶	¬	■	δ	√
0C	FF		,	<	L	\	l	l	í	£	¤	¶	†	■	∞	▫
0D	CR		‑	=	M	]	m	}	ƒ	¥	‑	‑	=	‑	φ	²
0E	SO		.	>	N	^	n	~	À	Þ	«	ƒ	†	‑	ε	▪
0F	SI		/	?	O	‑	o	DEL	Á	ƒ	»	‑	±	■	□	

Figure 56.CWI

Roman-8

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	`	p			-	â	Å	Á	Þ	
1		!	1	A	Q	a	q			À	Ý	ê	í	Ã	þ	
2		"	2	B	R	b	r			Â	Ý	ô	ø	ã	.	
3		#	3	C	S	c	s			È	°	û	æ	ð	µ	
4		\$	4	D	T	d	t			Ê	ç	á	å	ð	¶	
5		%	5	E	U	e	u			Ë	ç	é	í	í	¾	
6		&	6	F	V	f	v			Î	Ñ	ó	ø	í	-	
7		'	7	G	W	g	w			Ï	ñ	ú	æ	ó	¼	
8		(	8	H	X	h	x			’	i	à	Ä	ò	½
9		)	9	I	Y	i	y			’	ë	è	ì	ò	¤
A		*	:	J	Z	j	z			”	n	ð	ö	ö	¤	
B		+	;	K	[	k	{			”	£	ù	ü	š	«
C		,	<	L	\	l	|			”	¥	ä	é	š	»	
D		-	=	M	]	m	}			Ù	§	ë	í	ú	»
E		.	>	N	^	n	-			Û	f	ö	ß	ÿ	±	
F		/	?	O	_	o	▀			€	ç	ü	ö	ÿ		

Figure 57.Roman-8

IN2

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00	Ø	▶		0	@	P	·	p	Ç	É	á	■■■■	L	ð	Ó	-
01	®	◀	!	1	A	Q	a	q	ü	æ	i	■■■■	▀	D	ß	±
02	‰	‡	"	2	B	R	b	r	é	ë	ó	█	T	Ê	Ô	-
03	♥	!!	#	3	C	S	c	s	â	ô	ú	|	|	Ë	Ò	¾
04	♦	¶	\$	4	D	T	d	t	ä	ö	ñ	†	-	È	Ó	¶
05	✚	§	%	5	E	U	e	u	à	ò	Ñ	Á	+	ı	Ö	§
06	♣	-	&	6	F	V	f	v	â	û	■	À	ã	í	µ	¼
07	*	‡	'	7	G	W	g	w	ç	ù	Ω	À	Ã	í	p	,
08	█	↑	(	8	H	X	h	x	ê	ÿ	ℓ	®	ℓ	í	p	*
09	Ø	↓	)	9	I	Y	i	y	ë	ö	®	†	F	j	Ú	"
0A	□	→	*	:	J	Z	j	z	è	ú	¬	|	▲	Γ	Ù	.
0B	♂	←	+	;	K	[	k	l	í	ø	½	▀	▀	█	Ù	1
0C	♀	L	,	<	L	\	l	l	i	£	¾	‡	‡	█	Ý	3
0D	♪	↔	-	=	M	]	m	]	i	ø	i	c	=	;	Ý	2
0E	♫	▲	.	>	N	-	n	-	Ä	×	«	¥	‡	ì	-	*
0F	⚙	▼	/	?	O	-	o	△	Å	f	»	˥	˥	█	‘	

Figure 58.IN2

Turkish

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00	Ø	►		0	@	P	'	p	Ç	È	á	à	L	॥	α	≡
01	®	◀	!	1	À	Q	a	q	ü	æ	í	í	Ł	🇹	ß	±
02	‰	‡	"	2	B	R	b	r	é	Œ	ó	ó	Ț	₩	Γ	Σ
03	♥	!!	#	3	C	S	c	s	â	ô	ú	ú	†	„	π	≤
04	♦	¶	\$	4	D	T	d	t	ä	ö	ñ	ñ	-	€	Σ	ƒ
05	♣	§	%	5	E	U	e	u	à	ò	ñ	ñ	†	ƒ	σ	J
06	♠	-	&	6	F	V	f	v	ã	û	š	š	†	Γ	μ	÷
07	•	‡	'	7	G	W	g	w	ç	ù	ş	ş	†	†	τ	≈
08	■	↑	(	8	H	X	h	x	ê	‡	ž	ž	‡	‡	Φ	°
09	◦	↓	)	9	I	Y	i	y	ë	ö	‑	‑	‡	‡	θ	·
0A	□	→	*	:	J	Z	j	z	è	ø	‑	‑	||	≈	Γ	·
0B	♂	-	+	;	K	[	k	{	ï	ç	½	½	🇹	█	δ	¼
0C	♀	„	,	<	L	\	l	|	î	£	¾	¾	†	█	∞	n
0D	♪	↔	-	=	M	]	m	}	ı	¥	ı	ı	=	||	∅	²
0E	♫	▲	.	>	N	^	n	~	À	Ş	«	‡	‡	||	ε	■
0F	◊	▼	/	?	O	-	o	o	À	ş	»	»	±	█	○	

Figure 59.Turkish

Bulgarian

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0															
00	|	|	|	0	|	P	|	p	|	€	|	|	“	|	A	|	R	|	a	|	r	|									
01	|	|	|	!	|	1	|	A	|	Q	|	a	|	q	|	|	·	|	Y	|	‡	|	Б	|	С	|	б	|	с	|	
02	|	|	|	”	|	2	|	B	|	R	|	b	|	r	|	|	·	|	ъ	|	а	|	В	|	Т	|	в	|	т	|	
03	|	|	|	#	|	3	|	C	|	S	|	c	|	s	|	|	·	|	Э	|	é	|	Г	|	У	|	з	|	у	|	
04	|	|	|	\$	|	4	|	D	|	T	|	d	|	t	|	„	|	·	|	ю	|	ў	|	Д	|	Ф	|	g	|	ф	|
05	|	|	|	%	|	5	|	E	|	U	|	e	|	u	|	-	|	*	|	я	|	ö	|	Е	|	Х	|	е	|	х	|
06	|	|	|	&	|	6	|	F	|	V	|	f	|	v	|	|	·	|	ы	|	¶	|	ж	|	Ц	|	ж	|	ц	|	
07	|	|	|	'	|	7	|	G	|	W	|	g	|	w	|	|	·	|	§	|	·	|	з	|	Ч	|	з	|	ч	|	
08	|	|	|	(	|	8	|	H	|	X	|	h	|	x	|	|	|	|	у	|	И	|	Ш	|	и	|	ш	|			
09	|	|	|	)	|	9	|	I	|	Y	|	i	|	y	|	|	·	|	о	|	¶	|	и	|	Щ	|	й	|	ш	|	
0A	|	|	|	*	|	:	|	J	|	Z	|	j	|	z	|	|	|	|	ь	|	К	|	ъ	|	к	|	ъ	|			
0B	|	|	|	+	|	;	|	K	|	{	|	k	|	{	|	|	|	«	|	»	|	Л	|	ы	|	л	|	ы	|		
0C	|	|	|	,	|	<	|	L	|	\	|	l	|	l	|	|	А	|	|	э	|	M	|	б	|	м	|	ъ	|		
0D	|	|	|	-	|	=	|	M	|	]	|	m	|	}	|	|	Е	|	|	ю	|	Н	|	Э	|	н	|	э	|		
0E	|	|	|	.	|	>	|	N	|	^	|	n	|	^	|	|	И	|	·	|	я	|	О	|	ю	|	о	|	ю	|	
0F	|	|	|	/	|	?	|	O	|	_	|	o	|	|	|	|	ð	|	|	ы	|	П	|	я	|	п	|	я	|		

Figure 60. Bulgarian

96 GREEK

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00	NUL		SP	0	@	P	'									
01		DC1	!	1	A	Q	A	Π								
02		DC2	"	2	B	R	B	P								
03		DC3	#	3	C	S	Γ	Σ								
04		DC4	\$	4	D	T	Δ									
05			%	5	E	U	E	T								
06			&	6	F	V	Z	Y								
07	BEL		'	7	G	W	H	Φ								
08	BS CAN		(	8	H	X	ε	X								
09	HT		)	9	I	Y	I	Ψ								
0A	LF		*	:	J	Z	K	Ω								
0B	VT ESC		+	;	K	[	A	{								
0C	FF		,	<	L	\	M	|								
0D	CR		-	=	M	J	N	}								
0E	SO		.	>	N	^	S	-								
0F	SI		/	?	O	L	O	DEL							SP	

Figure 61. 96GREEK

Character Sets

Character Set 1

Figure 62.CharacterSet1

Character Set 2

Figure 63.CharacterSet2

Hexadecimal to Decimal Table

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
01	1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
02	2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
03	3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
04	4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
05	5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
06	6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
07	7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
08	8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
09	9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
0A	10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
0B	11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
0C	12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
0D	13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
0E	14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
0F	15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

Figure 64.Hexadecimal to Decimal Table

Epson FX-series Code Pages

The following Epson code charts provide information on the character tables available for Epson FX-series emulation mode.

Extended Graphics Character

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0			sp	0	@	P	'	p	Ç	É	á	⌘	Ł	Ĳ	α	≡
1			1	1	A	Q	a	q	ü	æ	í	⌘	Ł	Ŗ	β	±
2			"	2	B	R	b	r	é	Æ	ó	⌘	Ŗ	Ĳ	Γ	≥
3			#	3	C	S	c	s	â	ô	ú	|	Ւ	Ĳ	π	≤
4			\$	4	D	T	d	t	ä	ö	ñ	†	-	Ľ	Σ	ſ
5			%	5	E	U	e	u	à	ò	Ñ	‡	+	Ƒ	σ	ϳ
6			&	6	F	V	f	v	å	û	œ	||	Ւ	Ĳ	μ	÷
7			'	7	G	W	g	w	ç	ù	œ	¶	||	†	τ	~
8			(	8	H	X	h	x	ê	ÿ	ڻ	¶	Լ	†	ϕ	◦
9			)	9	I	Y	i	y	ë	Ö	¬	¶	Ր	Ｊ	θ	●
A			*	:	J	Z	j	z	è	Ü	¬	||	Ĳ	Gamma	Ω	•
B			+	;	K	[	k	{	ї	¢	½	Ր	Ր	█	δ	√
C			,	<	L	\	l	:	î	£	¼	Ջ	Լ	■	∞	n
D			-	=	M	]	m	}	î	¥	î	Ջ	=	█	ϕ	z
E			.	>	N	^	n	~	Ä	Pt	«»	Ժ	Լ	█	ε	█
F			/	?	O	_	o		Å	f	»	Ր	±	█	∅	∅

Figure 65. Epson Extended Graphics Character

Italic Character Table

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

Figure 66. Epson Italic Character

Epson Extended Character Variables

The following table shows characters that vary, by language, from the Epson Extended Character Graphics set.

The code points shown are the only ones that vary. For example, in the United Kingdom, only code point X'23' is different from the basic Epson table, shown on previous pages.

Country	Code Point (in hexadecimal)											
	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
U S A	#	\$	@	[	\	\]	^	'	{	l	}	~
France			à	°	ç	§			é	ù	è	"
Germany			§	Ä	Ö	Ü			ä	ö	ü	ß
U K	£											
Denmark - 1		\$		Æ	Ø	Å			æ	ø	å	
Sweden		¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
Italy				°	\	é		ù	à	ò	è	ì
Spain - 1	Pt			í	Ñ	¿			"	ñ		
Japan					¥							
Norway		¤	É	Æ	Ø	Å	Ü	é	æ	ø	ø	ü
Denmark - 2			É	Æ	Ø	Å	Ü	é	æ	ø	ø	ü
Spain - 2			á	í	Ñ	¿	é		í	ñ	ó	ú
Latin America I			á	í	Ñ	¿	é	ü	í	ñ	ó	ú
French Canadian			á	â	ç	ê	î	ô	é	ù	è	û
Latin America II					Ñ		ú	í	ó	á	é	ü

Figure 67. Epson Extended Character Variables

ANSI National Variations

The following table shows characters that vary, by language, from the ANSI Extended Character Graphics set.

	33	35	36	38	39	42	59	64	91	92	93	94	96	113	123	124	125	126	(dec.)
USA	!	#	\$	&	'	*	:	@	[	\	\]	^	`	q	{	}	~	
German	!	#	\$	&	'	*	:	5	A	O	U	^	`	q	Ä	Ö	Ü	ß	
French A	!	E	S	&	'	*	:	à	"	ç	é	^	`	q	é	ù	ë	"	
French B	!	é	ä	à	'	ë	:	è	á	\	ú	ó	ç	q	{	}	ö		
French/Canadian	!	#	\$	&	'	*	:	á	á	ç	é	í	ó	q	é	ú	ë	á	
Netherlands	!	#	F	&	'	*	:	@	[	\	\]	^	`	q	~	I	ij	"
Italian	!	E	S	&	'	*	:	5	"	ç	é	^	ù	q	À	ò	è	í	
United Kingdom	!	E	S	&	'	*	:	@	[	\	\]	^	`	q	{	}	~	
Spanish	!	ä	ó	&	'	*	:	é	í	ñ	ü	^	`	q	~	ñ	}	"	
Danish/Norwegian A	!	#	\$	&	'	*	:	é	æ	ø	A	^	`	q	æ	ø	a	"	
Danish/Norwegian B	!	#	ø	&	'	*	:	é	æ	ø	A	^	`	q	æ	ø	a	"	
Danish/Norwegian C	!	#	\$	&	'	*	:	é	æ	ø	A	ú	é	q	æ	ø	a	ú	
Danish/Norwegian D	!	#	ø	&	'	*	:	é	æ	ø	A	ú	é	q	æ	ø	a	ü	
Swedish/Finnish A	!	#	\$	&	'	*	:	é	å	ö	A	^	`	q	å	ö	a	"	
Swedish/Finnish B	!	#	ø	&	'	*	:	é	å	ö	A	^	`	q	å	ö	a	"	
Swedish/Finnish C	!	#	\$	&	'	*	:	é	å	ö	A	ú	é	q	å	ö	a	ú	
Swedish/Finnish D	!	#	ø	&	'	*	:	é	å	ö	A	ú	é	q	å	ö	a	ú	
Switzerland	!	#	\$	&	'	*	:	q	ä	ë	ë	^	`	q	ä	ö	ü	"	
USA (ISO)	!	#	\$	&	'	*	:	é	[	\	\]	^	`	q	{	}	~	
Yugoslavia	!	#	\$	&	'	*	:	z	s	đ	ć	č	z	q	đ	ć	č		
United Kingdom A	!	\$	£	&	'	*	:	@	[	\	\]	^	`	q	{	}	~	
Turkey	!	ö	ş	&	'	*	:	ç	ş	ı	ö	ü	ğ	ş	ı	ö	ü		
Greece	Γ	Δ	Σ	Θ	Α	*	Ξ	Ξ	Σ	Φ	Υ	Ω	｀	q	{	}	~		
Cyrillic	!	#	\$	&	'	*	:	е	[	\	\]	^	`	q	{	}	~	
	21	23	24	26	27	2A	3B	40	5B	5C	5D	5E	60	71	7B	7C	7D	7E	[hex.]

Figure 68. ANSI National Variations

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Appendix B. Interfaces

This section provides technical information for the parallel and serial interfaces.

The Parallel Interface

The parallel interface of this printer fully supports the Centronics protocol plus the specific features requested by the EPSON and IBM printer connection in monodirectional mode and the Compatibility and Nibbles modes in bidirectional mode, plus the negotiation phases and the device identifier (as IEEE P1284).

The parallel interface is available on a specific 36 contact connector type AMPHENOL 57-40360- 12-D56 or equivalent connector for 1284 Type B.

- Drive Capability
Up to 15 feet (5 m) on AWG26 min. wire size of twisted conductors on TTL receiver. The max. reachable distance is conditioned by the host drive capability and by the noise level along the interface cable path.
- Printer Connector Type
36 pins, 1284 Type B
- Cable Connector
25 pin, 1284 A Type

Signals Description

According to the IEEE - P1284 Standard, the pins assume different meanings and are identified by different names depending on the actual handshaking mode as follows:

- Compatibility mode (Centronics)
This is the lower level mode provides an asynchronous, byte-wide forward (host-to-peripheral) channel with data and status lines used according to their original definitions. The interfaces power up in the compatibility Mode Idle phase.
- Nibble Mode
This mode provides an asynchronous, reverse (peripheral-to-host) channel, under control of the host. In this mode, peripheral device to host data bytes are sent as two sequential, four-bit nibbles using the four peripheral-to-host status lines. These two modes cannot be active simultaneously.
- Byte Mode
This mode provides an asynchronous, byte-wide reverse (peripheral-to host) channel based on eight data lines of the interface for data and the control/status lines for handshaking. Byte mode is under host control and it cannot be simultaneously active with compatibility mode.

Operating Phases

The link protocol is mainly based on the following three phases:

- Negotiation Phase
This phase is activated always by the host, only when in compatibility mode, and defines:
 - whether a bidirectional link protocol can be established.
 - the handshaking mode as well as the communications mode to be used.
 - the device identification, if supported.
- Communication Phase
This phase is based on well defined handshaking rules which depend upon the selected link mode.
- Termination Phase

This phase is initiated by the host and returns the interface to the compatibility mode.

Parallel Interface Signals

Description of the signals in monodirectional link:

Signal Name	Pin N°	Source	Description
STROBE	1	HOST	Clock signal which controls data transmission with its falling edge.
ACK	10	PRINTER	Negative pulsed signal indicating that the printer has received data and is ready to accept the next set of data. Also sent when the printer is switched from off-line to on-line and at the end of the initialization time. The BUSY line is always active.
DATA BIT 1	2	PRINTER / HOST	Data 8 is the most significant bit. These are the data lines used by host or printer to transfer control code or ASCII codes.
DATA BIT 2	3		
DATA BIT 3	4		
DATA BIT 4	5		
DATA BIT 5	6		
DATA BIT 6	7		
DATA BIT 7	8		
DATA BIT 8	9		
BUSY	11	PRINTER	When high, this signal indicates that the printer cannot accept data or control codes. This signal goes high during data processing, in test and program modes, during initialization, when the buffer is full, and when a paper jam, paper end or paper size error occurs, in case of a power-on reset, the reception of a STROBE signal, while the register was not yet read, or when the INIT line is still active.
PE	12	PRINTER	When high, this signal indicates that the automatic input bin is out of paper and paper cannot be loaded from an other bin.
SELECT	13	PRINTER	When high, this signal indicates that the printer is on-line. It is put to low state in case of initialization or test and program mode. In IBM Proprinter emulation in low condition this signal signals a off-line request from the operator panel, paper jam, paper end or paper size errors.
AUTOFEEDXT	14	HOST	Active low level signal. Indicates whether a LF is performed after a CR or not.
GND	16	–	Logical ground level (0V).
CHASSIS GND	17	–	Frame ground.
+5 VDC	18	PRINTER	Is the DC voltage supplied by a component that limits the driven capability up to 100 mA.
SIGNAL GND	19-30	–	Signal ground.
INIT	31	HOST	Active low level signal. Indicates, that the printer is initializing. The BUSY signal is forced high.
ERROR	32	PRINTER	When low, this signal indicates that the printer is offline, there is an offline request from the operator panel, or the printer is in an error state because of: paper jam, paper end or paper size error, engine error, output bin full or cover open condition.
+5V	35	PRINTER	Pulled up to signal.
SELECTIN	36	HOST	Active low level signal. Enables the printer.

The pins 1 to 14 of the printer are connected to the pins with the same number of the parallel port of the host.

The pins 19 to 30 of the printer are connected to the pins 18 to 25 of the parallel port of the host.

The pins 31, 32 and 36 of the printer are connected respectively to the pins 16, 15 and 17 of the parallel port of the host.

1284 Mode signal names are shown with their Compatibility mode (Centronics) names in parenthesis () for the bidirectional link.

Signal Name	Pin N° for Signal Wire	Pin N° for Return Wire	Source
HostClk (nStrobe)	1	19	HOST
AD1 (Data 1)	2	20	HOST in Compatibility mode and negotiation phase.
AD2 (Data 2)	3	21	
AD3 (Data 3)	4	22	NOT USED in Nibble mode.
AD4 (Data 4)	5	23	
AD5 (Data 5)	6	24	BIDIRECTIONAL in Byte mode.
AD6 (Data 6)	7	25	
AD7 (Data 7)	8	26	
AD8 (Data 8)	9	27	
PrtClk (nAck)	10	28	PRINTER
PrtBusy (Busy)	11	29	PRINTER
AckDataReq (PError)	13	28	PRINTER
Xflag (Select)	14	28	PRINTER
HostBusy (nAutofd)	15	30	HOST
Peripheral Logic High (+5 V)	18		PRINTER
n.a. (nInit)	31	30	HOST
nDataAvail (NFault)	32	29	PRINTER
1284 Active (NSelectIn)	36	30	
Common Logic Ground		16 and Return Wires	
Chassis Ground	17		

Parallel Interface Signals Behaviour

HostClk /nWrite (nStrobe)

Compatibility Mode: Set Active low to transfer data into printer input latch. Data is valid while nStrobe is low.

Negotiation Phase: Set active low to transfer extendibility request value into printer input latch. Data is valid on the falling edge of HostClk.

Reverse Data Transfer Phase: Set high during Nibble Mode transfer to avoid latching data into printer. Pulsed low during Byte Mode transfers to acknowledge transfer of data from the printer. The printer shall ensure that this pulse does not transfer a new data into the printer input latch.

AD1 ... AD8 (Data 1 ... Data 8)

Compatibility Mode: Forward channel data.

Negotiation Phase: Extendibility request value.

Reverse Data Transfer Phase: Nibble Mode: NOT USED.

Byte Mode: Reverse channel data.

PrtClk (nAck)

Compatibility Mode: Pulsed low by the printer to acknowledge the transfer of a data from the host.
 Negotiation Phase: Set low to acknowledge 1284 support, then set high to indicate that the Xflag (Select) and data available flags may be read.
 Reverse Data Transfer Phase: Used in both Nibble and Byte Modes to qualify data being sent to the host.

PrtBusy (Busy)

Compatibility Mode: Driven high to indicate that the printer is not ready to receive data.
 Negotiation Phase: Reflects the present state of the printer's forward channel.
 Reverse Data Transfer Phase: **Nibble Mode:** Data bits 3 then 7, then forward channel busy status
Byte Mode: Forward channel busy status.
 Reverse Idle phase: Forward channel busy status.

AckDataReq (PError)

Compatibility Mode: Driven high to indicate that the printer has encountered an error in the paper path.
 The printer shall set nFault low whenever it sets PError high.
 Negotiation Phase: Set high to indicate 1284 support, then follows nDataAvail (nFault).
 Reverse Data Transfer Phase: **Nibble Mode:** Data bits then 6.
Byte Mode: same as nDataAvail (nFault)
 Reverse Idle phase: Set high until host requests data transfer, then follows nDataAvail (nFault).

Xflag (Select)

Compatibility Mode: Set high to indicate that the printer is on-line.
 Negotiation Phase: The Xflag refers to extendibility flag. Used by the printer to reply to the requested extendibility byte sent by the host during the negotiation phase. The signal level is low for Nibble Mode, high for Byte Mode.
 Reverse Data Transfer Phase: **Nibble Mode:** Data bits 1 then 5.
Byte Mode: Same as negotiation phase.
 Reverse Idle phase: Same as negotiation phase.

Xflag (Select)

Compatibility Mode: Set low by host to put the printer into auto-line feed mode.
 Negotiation Phase: Set low in conjunction with 1284 Active (NSelectIn) being set high to request a 1284 mode.
 Then set high after printer sets PtrClk (nAck) low.

Xflag (Select)

Reverse Data Transfer Phase: **Nibble Mode:** Set low to indicate that host can receive printer-to-host data then set high to acknowledge receipts of that nibble.
Byte Mode: Same as Nibble Mode to request and acknowledge bytes. Following a reverse channel transfer the interface transitions to idle phase when HostBusy (nAutoFd) is set low and printer's no data available.
 Reverse Idle phase: Set high in response to PtrClk (nAck) low pulse to re-enter reverse data transfer phase.
 Is set high with 1284 Active (NSelectIn) being set low, the 1284 idle phase is being aborted and the interface returns to Compatibility Mode.

Peripheral Logic High (+ 5V)

Set high to indicate that all other signals sourced by the printer are in valid state. Set low to indicate the printer is off.

n.a. (nInit)

Compatibility Mode: Pulsed low in conjunction with 1284 Active low to reset the interface and force to return to Compatibility Mode idle phase.

Negotiation Phase: Set HIGH.

Reverse Data Transfer Set HIGH.

Phase:

nDataAvail (NFault)

Compatibility Mode: Set low to indicate that an internal printer error has occurred.

Negotiation Phase: Set high to acknowledge 1284 compatibility. In Nibble or Byte Mode it is then set low to indicate printer-to-host data is available following host setting HostBusy (nAutoFd) high.

Reverse Data Transfer Phase: **Nibble Mode:** Set low to indicate that printer is ready to send to host. Then used to send data bits 0 then 4.
Byte Mode: Used to indicate that data is available.

Reverse Idle phase: Used to indicate that data is available.

nDataAvail (NFault)

Compatibility Mode: Set low to indicate that an internal printer error has occurred.

Negotiation Phase: Set high to acknowledge 1284 compatibility. In Nibble or Byte Mode it is then set low to indicate printer-to-host data is available following host setting HostBusy (nAutoFd) high.

Reverse Data Transfer Phase: **Nibble Mode:** Set low to indicate that printer is ready to send to host. Then used to send data bits 0 then 4.
Byte Mode: Used to indicate that data is available.

Reverse Idle phase: Used to indicate that data is available.

1284 Active (NSelectIn)

Compatibility Mode: Set low by host to select printer.

Negotiation Phase: Set high in conjunction with Host Busy being set low to request a 1284 mode.

Reverse Data Transfer Phase: Set high to indicate that bus direction is printer to host. Set low to terminate 1284 mode and set bus direction host to printer.

Reverse Idle Phase: Same as Reverse Data Transfer phase.

Interface Timing

Timing and Handshaking depend upon the connection mode.

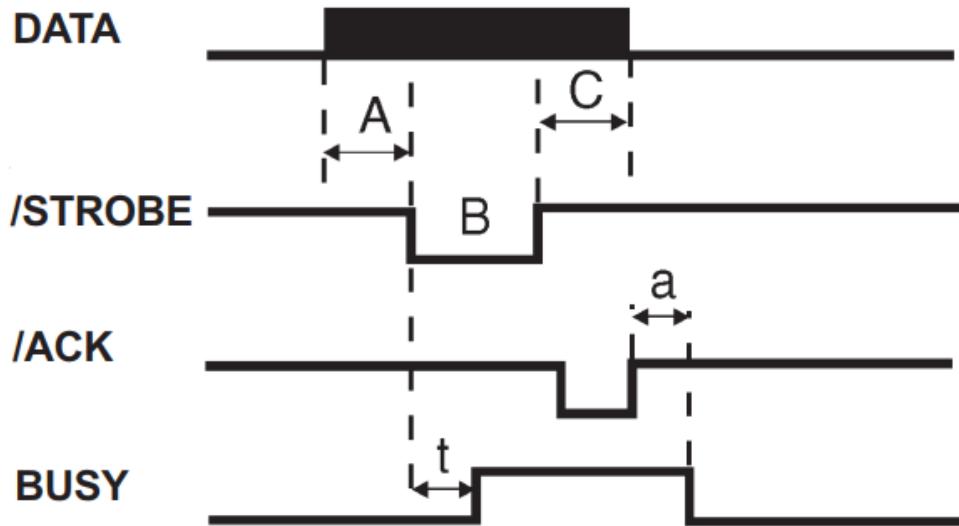


Figure 69. Mode Centronics

Our Centronics mode supports the BUSY-WHILE-STROBE busy signal timing and ACK-INBUSY as BUSY-ACK relationship.

Legend	Time interval	Min.	Max.	
A	Data Setup Time	1.0		
B	Strobe pulse width	1.0	500	
C	Data hold time	1.0		all times in μ s
t	Busy while Strobe	0.25	1.0	
a	Ack in Busy	0	2.5	

Mode IEEE 1284

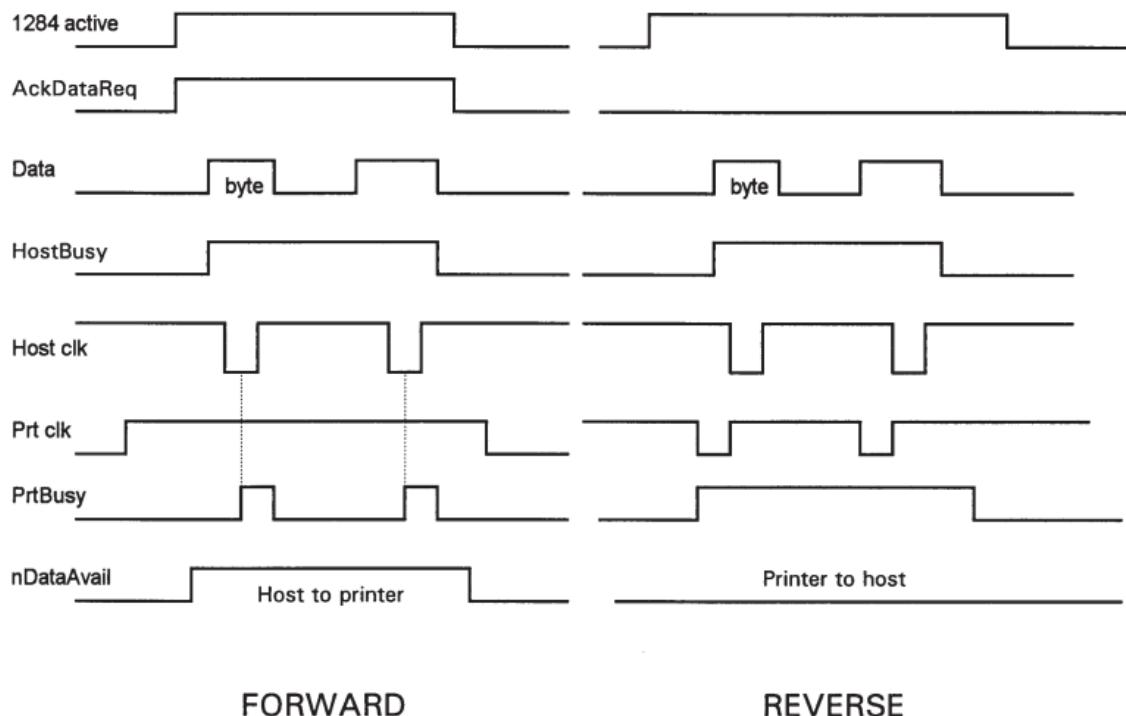


Figure 70. Mode IEEE 1284

The Serial Interface

This printer provides the RS-232/C serial interfaces. The interface mode is selected via menu.

- Transmission Type
Data is sent and received in start/stop (asynchronous) transmission.
- Character Format
Each character is transmitted in the following format:
1 START BIT + 8 DATA BITS + 1 PARITY BIT + 1 STOP BIT
The least significant bit of the data bits is sent first after the start bit. The number of data bits is selected via menu. The parity bit, when present, follows the data bits. The start bit is a logical “0” and the stop bit is a logical “1”. The start and stop bits are used as character framing bits.
- Printer Connector
Male DB9 or equivalent connector.
- Drive Capability
Max. 50 feet (15 m) for all supported data rates. The RS-422/A interface is effective up to 1200 m.

Serial Interface Signals

The following table lists the RS-232/C serial interface signals:

Signal Name	Pin Number	Local Connect. Source	Remote Connect. Source	Description
SIGNAL GROUND	5	—	—	Always connected to the 0 Volts of the Power Supply
TXD	3	Printer	Printer	Transmitted Data Signal (an output from printer). A MARK condition is held during IDLE communication state. An indeterminate state is present when printer is powered off.
RXD	2	Host	Data Set	Received data signal (an input to printer).
RTS	7	Printer	Printer	Request to Send Signal (an output from printer). Active HIGH level signal. It is HIGH until the printer is powered off, then an indeterminate state is present .
CTS	8		Data Set	Active HIGH level signal indicates that the host or data set is ready to receive data from the printer.
DSR	6		Data Set	Active HIGH level signal. Indicates that the host or data set is ready to be connected to the printer and is ready for data transfer.
DCD	1		Data Set	Active HIGH level signal. Indicates that the host is transmitting or the data set is receiving the Data Carrier signal.
2nd RTS	9	Printer		Functionally equivalent to the DTR signal.
DTR	4	Printer	Printer	Data Terminal Ready. Normally HIGH (ON). Indicates that the printer is ready to initiate a connection.

LAN Interface Port

LAN Interface Port

1. Ethernet 10/100BaseT Connector
2. Green 10/100Mbit/sec. Transmission Speed LED
3. Yellow Traffic LED

LED Indicators

The LED indicator modes are described in the following table:

LED	Status	Description
Yellow LED	Unlit	Transmission speed at 10Mbit/sec.
	Lit	Transmission speed at 100Mbit/sec.
Green LED	Blinks	Transmitting or receiving packets from the network.

USB Interface Port

USB 2.0 full speed 12/Mbit/sec. interface.

Appendix C. Network Interface Technical Reference

Network Configuration Parameters

IP Address Assignment

Fixed: Assigns the static or fixed IP address.
DHCP: Assigns the dynamic IP address (DHCP protocol).
Default value is DHCP.

Fixed and DHCP assignments of IP addresses are supported. On most networks, you will want to assign a permanent IP address and disable DHCP.

IP Address

These values set the IP Address. The address is represented by a decimal notation where the decimal values are divided by points in four fields.

Each field ranges between 0 and 255.
Default is 127.000.000.000.

Subnet Mask

These values set the Subnet Mask number. This number is represented by a decimal notation where the decimal values are divided by points in four fields. Each field ranges between 0 and 255.

Default is 255.255.254.000.

Default Gateway

These values set the Default Gateway address. This address is represented by a decimal notation where the decimal values are divided by points in four fields. Each field ranges between 0 and 255.

Default is 000.000.000.000.

The gateway address tells the printer which router or gateway to use to access other subnets or hosts. Simply add your router's IP address as the default gateway. All packets destined for other subnets will be forwarded to the default gateway for delivery to the destination host.

Host Name

The host is identified by a name in the NetBIOS protocol over TCP/IP. This function allows creating the name of the host using a 14-character string.

Default is PTX_xxxxxx where xxxxxx are the last 6-digits of the MAC address...

Workgroup Name

The workgroup is identified by a name in the NetBIOS protocol over TCP/IP in Windows. This function allows creating the name of the workgroup using a 14-character string.

Default is Workgroup.

SMTP Service

SMTP (Simple Mail Transfer Protocol) allows a mail server address to be entered into the printer configuration to send automated e-mail notifications with printer alert conditions.

Disabled: Disables the SMTP (Simple Mail Transfer Protocol) service, that is disables the reception/transfer/error service of the e-mail.

Enabled: Enables the SMTP service, that is it enables the reception/transfer/error service of the e-mail.

Default is Disabled.

Mail Server Address

These values set the mail server address. This number is represented by a decimal notation where the decimal values are divided by points in four fields. Each field ranges between 0 and 255.

Default is 000.000.000.000.

Note: Item selection on the printer menu allowed only if the “SMTP Service” function choice is Enabled.

E-mail Address (Receiver)

This function allows writing the e-mail address where you can notify the failures using a 48-character string. Default is an empty string.

Note: Item selection on the printer menu allowed only if the “SMTP Service” function choice is Enabled.

E-mail Address (Sender)

This function allows to write the sender e-mail address using a 48-character string.

Default is an empty string.

Note: Item selection on the printer menu allowed only if the “SMTP Service” function choice is Enabled.

Location

You can enter the physical location of the printer into this field.

Contact

You can enter a network support contact's name and phone number into this field.

Managing a Single Printer Configuration Using the Internal Webpage

Configuration Password

The Printronix S809's configuration settings can be protected by a password to keep unauthorized users from making changes. When you try to submit any Printronix S809 configuration change, you will be asked for your user name and password. At the prompt, enter the default user **name = root** and **default password = root**, unless you have setup another user name and password with root privileges.

Storing and Saving Settings

When settings are configured on the Printronix S809 and the SUBMIT button on the related page has been pressed, you will be reminded to Reboot the printer to ensure the latest settings are in use. To reset the Printronix S809, go to the Home page, enter the Power On Reset page, and Click on the REBOOT PRINTER button.

Managing Multiple Printers Using the Remote Printer

Management Utility

The Remote Printer Management Utility (RPMU) is a software tool for network administrator's that allows the configuration and control of Printronix S809 printers remotely over a LAN. With this tool the installed printers can be controlled, configured and organized easily. The main features are:

Device Discovery - Searches for the devices within a range of IP addresses.

Printer Organization - Printers connected to the network can be organized into logical groups in a hierarchically structured tree.

Printer Status Report - Checks the printer's status and reports alarms.

Printer Configuration - Printers may be configured as needed from the administrator's workstation. Change the configuration of single printers, or simultaneously change the configuration of multiple printers in your enterprise, anywhere, and anytime.

Firmware Updating - Provides a firmware download function to upgrade the printer's firmware.

Remote Operator Panel Management - Provides a virtual operator panel for the remotely connected printer at the administrator's workstation that allows performing all functions normally achieved pressing the operator panel keys. The RPMU also provides the basic status management for third-party printers compliant to the standard MIB objects. Visit our website to download this free software utility program.

Network Interface Summary

Table 5. Network Interface Summary

INSTALLATION INTEGRATION

Network speed / connection	10/100 BASET
Auto-detection	10/100 network speed Yes
Manual network speed selection	No
Parallel interface free	Yes
Network configuration through printer operator panel	Yes
Web page network setting configuration	Yes
Web page login password protection	Yes
Web page default user-id and default password	Root, Root
Windows Port Monitor and Drivers	Yes, download from www.Printronix.com
NIC configuration printout	Yes

Table 5. Network Interface Summary (cont.)

DHCP	Yes
WINS	Yes
DDNS	Yes
SYSTEM / OS	
IBM System i OS 400	Yes
IBM pSeries® AIX	Yes
Sun Solaris	Yes
Unix	Yes
Linux®	Yes
Windows 95,98,2000,NT,XP, 2003 Server	Yes
Windows VISTA, Win7, Win8, Win10	Yes
NETBIOS over TCP	Yes
NETBEUI	No
Novell Netware	No
OS2	No
Macintosh / Apple EtherTalk	No
PRINTING METHODS	
Raw Port 9100	Yes
LPD/LPR Port 515	Yes
LPR print queue name	Any name (PR1, d1PRN, etc.) can be used.
IPDS Port 5100	Yes (with IPDS option on some models)
Interleaved multi-protocol communications	Yes
Hot Interface switching	Yes between Parallel and LAN interfaces
Hot Port switching	Yes between Raw 9100, LPR/LPD 515, and IPDS 5100 (with IPDS option on some models)
Multiple internal print server queues	No
String substitutions	No
String before/after job	No
DATASTREAMS	
S809 ASCII native	Yes
ASCII text and single byte escapes	Yes
IBM Proprinter III emulation	Yes (on some models)
IBM Personal Printer 2391 emulation	Yes (on some models)
IBM Proprinter III emulation	Yes (on some models)
IBM Personal Printer 2391 emulation	Yes (on some models)
Epson LQ series emulation	Yes (on some models)
Epson - FX emulation	Yes (on some models)
Epson LQ1600K with GB18030	Yes (with DBCS option on some models)
character set emulation	
IPDS	Yes (with IPDS option on some models. See "Intelligent Printer Data Stream," for application program compatibility considerations)
PRINTER SERVER FACILITIES SUPPORT	
PSF AIX	Yes
PSF OS400	Yes

Table 5. Network Interface Summary (cont.)

PSF MVS™	Yes
PSF VSE	Yes
PSF VM	Yes
NETWORK MANAGEMENT	
S809 Remote Printer Management Utility	Yes, download from www.Printronix.com
IBM NPM	Yes (generic printer)
HP JetAdmin	Yes (generic printer)
E-mail SMTP	Yes
Internal Web page	Yes
PRINTER STATUS AND ERROR REPORTING	
Ready	Yes
Not ready	Yes
Paper out	Yes
Paper jam	Yes
Cover open	Yes
Machine check (carriage fault, ribbon blocked...)	Yes
NETWORK CONFIGURATION PARAMETERS (see above)	
LINK LAYER	
Ethernet II	Yes
802.2	Yes
802.3	Yes
2/SNAP	Yes
Link disconnect (no data timeout)	15 second fixed setting
PROTOCOLS	
IP	Yes
TCP	Yes
UDP	Yes
ARP	Yes
RARP	Yes
SMP	Yes
Telnet	Yes
DHCP	Yes
DDNS	Yes
WINS	Yes
BOOTP	Yes
FTP	Yes
TFTP	Yes
ICMP	Yes
LPR/LPD	Yes
DHCP	Yes
SNMP	Yes
SMTP	Yes

Table 5. Network Interface Summary (cont.)

Direct Socket Printing	Yes
HTTP	Yes
PING	Yes
SNMP	Yes
MIB II (RFC 1514)	Yes (see note)
Host Resource MIB (RFC 1514)	Yes
Printer MIB (RFC1759)	Yes
S809 Private MIB	Yes
Reverse Telnet	No
PROS	No
IPP	No
SLPv2	No
HARDWARE	
RISC processor	Yes
Flash memory	4MB
RAM	16MB
Attachment connector type	RJ-45
Network traffic led	Yes (green)
Network speed led	Yes (yellow)
FIRMWARE UPGRADE	
Firmware upgrade over network	Yes
Firmware upgrade through parallel interface	Yes

Note: All relevant parts of MIB-II (RFC1231) required to support HP JetAdmin are implemented.

- The following IP table group OIDs are not implemented: ipForwarding, ipDefaultTTL , ipInReceives ,ipInHdrErrors,ipInAddrErrors, ipForwDatagrams, ipInUnknownProtos, ipInDiscards, ipInDelivers, ipOutRequests, ipOutDiscards, ipOutNoRoutes, ipReasmTimeout ,ipReasmReqds, ipReasmOKs,ipReasmFails,ipFragOKs, ipFragFails, ipFragCreates
- The ipRouteTable OIDs are not implemented.
- The ipNetToMediaTable OIDs are not implemented.
- The icmp group OIDs are not implemented.
- The tcp group OIDs are not implemented.
- The udp group OIDs are not implemented.
- The snmp group OIDs are not implemented.

Appendix D. LAN Interface MIB Support

Table 6 List of the MIB of the printer.

Description	MIB
prtButton	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 1
prtBaseCodeVersion	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 2
prtHtmlContact	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 3
prtRebootPrinter	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 4
prtRestoreToMfg	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 5
prtGetPrinterStatus	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 6
prtMenuLocked	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 7
prtPowerOnCycles	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 8
prtPowerOnMinutes	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 9
prtBarCodes	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 10
prtPageWithGraphics	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 11
prtHSDraftCharacters	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 12
prtDPCharacters	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 13
prtDPTextCharacters	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 14
prtNLQCharacters	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 15
prtBESTDraftCharacters	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 16
prtLQCharacters	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 17
prtPrintedPageNumber	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 18
prtLPD_Timeout	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 19
LPD_Reboot	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 20
prtMenuUserMacro	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2
prtMenuUserMacroTable	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1
prtUserMacroEntry	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1
prtUserMacroIndex	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 1
prtUserMacroLineSpace	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 2
prtUserMacroLineSpaceLock	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 3
prtUserMacroLength	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 4
prtUserMacroTopOfForm	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 5
prtUserMacroSkiPover	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 6
prtUserMacroDraftMode	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 7
prtUserMacroFont	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 8
prtUserMacroPitch	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 9
prtUserMacroPitchLock	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 10
prtUserMacroLeftMargin	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 11
prtUserMacroRightMargin	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 12
prtUserMacroSlashZero	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 13
prtUserMacroPath	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 14
prtUserMacroTear	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 15
prtUserMacroImpact	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 16
prtUserMacroPerforSave	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 17
prtUserMacroGap	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 18
prtUserMacroTuningHor	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 19
prtUserMacroTuningVer	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 20
prtUserMacroIgnoreFF	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 21
prtUserMacroQuality	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 22
prtUserMacro1524Cpi	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 23

Table 6 List of the MIB of the printer.

Description	MIB
prtUserMacroTearDelay	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 24
prtUserMacroQuiet	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 25
prtUserMacroDBCS	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 26
prtUserMacroDBCS_Cpi	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 27
prtUserMacroDBCS_Lpi	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 28
prtUserMacroTH_Space	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 29
/* IPDS SETTINGS START */	
prtUserMacrol_Pitch	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 30
prtUserMacrol_LineSpace	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 31
prtUserMacrol_RightMargin	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 32
prtUserMacrol_FormLength	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 33
prtUserMacrol_Font	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 34
prtUserMacrol_NLQ_Font	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 35
prtUserMacrol_HostFastDraft	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 36
prtUserMacrol_Nation	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 37
prtUserMacrol_Emulation	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 38
prtUserMacrol_MediaSizePriority	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 39
prtUserMacrol_BcMode	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 40
prtUserMacrol_GraMode	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 41
prtUserMacroFontLock	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 42
/* IPDS SETTINGS END */	
prtMenuConfig	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3
prtMenuConfigTable	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1
prtMenuConfigEntry	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1
prtMenuConfigMacroWork	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 1
prtMenuConfigIfType	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 2
prtMenuConfigEmulation	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 3
prtMenuConfigCharset	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 4
prtMenuConfigNation	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 5
prtMenuConfigAutoCR	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 6
prtMenuConfigAutoLF	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 7
prtMenuConfigIBM20CPI	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 8
prtMenuConfigBarcode	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 9
/* ANSI SETTINGS START */	
prtMenuConfigA_CharSet	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 10
prtMenuConfigA_CharTable	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 11
prtMenuConfigA_Nation	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 12
prtMenuConfigA_RIS_Enable	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 13
prtMenuConfigA_SI_SO_Control	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 14
prtMenuConfigA_AutoCR	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 15
prtMenuConfigA_PrimeOnDEL	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 16
prtMenuConfigA_ControlInDg	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 17
prtMenuConfigA_ExpandUp	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 18
prtMenuConfigA_AltGraph	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 19
prtMenuConfigA_8BitControl	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 20
prtMenuConfigA_ENQ_Code	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 21
prtMenuConfigA_SubSuperScript	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 22
prtMenuConfigA_ControlInESC	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 23
prtMenuConfigA_VT_NotSet	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 24

Table 6 List of the MIB of the printer.

Description	MIB
prtMenuConfigA_DoubleLF	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 25
prtMenuConfigA_AutoWrap	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 26
prtMenuConfigA_ClearMargin	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 27
prtMenuConfigA_Backup	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 28
prtMenuConfigA_GuardBar	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 29
/* ANSI SETTINGS END */	
prtMenuConfigParType	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 30
prtMenuConfigParSelectIn	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 31
prtMenuConfigParDataBits	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 32
prtMenuConfigParDedicBuffer	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 33
prtMenuConfigSerType	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 34
prtMenuConfigSerBaudRate	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 35
prtMenuConfigSerDataBits	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 36
prtMenuConfigSerParity	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 37
prtMenuConfigSerProtocol	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 38
prtMenuConfigSerLocRem	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 39
prtMenuConfigSerDedicBuffer	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 40
prtMenuConfigBuzzer	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 45
prtMenuConfigSequence	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 46
prtMenuConfigRibbon	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 47
prtMenuConfigBarcodeDpi	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 48
prtMenuConfigTextDirect	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 49
prtMenuConfigGraphDirect	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 50
prtMenuConfigBarcodeDirect	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 51
prtMenuConfigGraphHighSpeed	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 52
prtMenuConfigPowerOnPath	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 53
prtMenuConfigMenuLanguage	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 54
prtMenuConfigLowerJamSensor	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 55
prtMenuConfigUpperJamSensor	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 56
prtMenuConfigTearAdjust	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 57
prtMenuConfigQuick	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 58
prtMenuConfigOverlay	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 59
prtMenuConfigA_AutoLF	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 60
prtMenuConfigD_G0_CharSet	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 61
prtMenuConfigD_UP_CharSet	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 62
prtMenuConfigD_AutoCR	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 63
prtMenuConfigD_AutoLF	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 64
prtMenuConfigD_AutoWrap	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 65
prtMenuConfigCondensed	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 66
printserver	1, 3, 6, 1, 4, 1, 6345, 1, 1
csystem	1, 3, 6, 1, 4, 1, 6345, 1, 1, 1
csystemVersion	1, 3, 6, 1, 4, 1, 6345, 1, 1, 1, 1
cinetd	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2
cinetdnum	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 1
cinetdNumber	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 1, 1
cinetdIpd	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 2
cinetdDescr1	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 2, 1
cinetdType1	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 2, 2

Table 6 List of the MIB of the printer.

Description	MIB
cinetdUdp1	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 2, 3
cinetdWait1	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 2, 4
cinetdInstance1	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 2, 5
cinetdUserID1	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 2, 6
cinetdProgram1	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 2, 7
cinetdProgram11	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 2, 8
cinetdftp	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 3
cinetdDescr2	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 3, 1
cinetdType2	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 3, 2
cinetdUdp2	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 3, 3
cinetdWait2	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 3, 4
cinetdInstance2	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 3, 5
cinetdUserID2	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 3, 6
cinetdProgram2	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 3, 7
cinetdProgram12	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 3, 8
cinetdtelnet	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 4
cinetdDescr3	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 4, 1
cinetdType3	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 4, 2
cinetdUdp3	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 4, 3
cinetdWait3	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 4, 4
cinetdInstance3	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 4, 5
cinetdUserID3	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 4, 6
cinetdProgram3	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 4, 7
cinetdProgram13	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 4, 8
cinetddipd	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 5
cinetdDescr4	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 5, 1
cinetdType4	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 5, 2
cinetdUdp4	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 5, 3
cinetdWait4	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 5, 4
cinetdInstance4	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 5, 5
cinetdUserID4	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 5, 6
cinetdProgram4	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 5, 7
cinetdProgram14	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 5, 8
cservices	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3
cservnum	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 1
cservNumber	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 1, 1
cservftp	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 2
cservDescr1	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 2, 1
cservPort1	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 2, 2
cservType1	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 2, 3
cservtelnet	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 3
cservDescr2	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 3, 1
cservPort2	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 3, 2
cservType2	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 3, 3
cservlpd	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 4
cservDescr3	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 4, 1
cservPort3	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 4, 2
cservType3	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 4, 3

Table 6 List of the MIB of the printer.

Description	MIB
cservdipd	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 5
cservDescr4	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 5, 1
cservPort4	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 5, 2
cservType4	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 5, 3
cqueue	1, 3, 6, 1, 4, 1, 6345, 1, 1, 4
cinit	1, 3, 6, 1, 4, 1, 6345, 1, 1, 5
cintAddr	1, 3, 6, 1, 4, 1, 6345, 1, 1, 5, 1
cdefRout	1, 3, 6, 1, 4, 1, 6345, 1, 1, 5, 3
cnetMask	1, 3, 6, 1, 4, 1, 6345, 1, 1, 5, 2
cinitHost	1, 3, 6, 1, 4, 1, 6345, 1, 1, 5, 4
cinitWorkg	1, 3, 6, 1, 4, 1, 6345, 1, 1, 5, 5
cinitDescr	1, 3, 6, 1, 4, 1, 6345, 1, 1, 5, 6
cinitBoot	1, 3, 6, 1, 4, 1, 6345, 1, 1, 5, 7
cprinter	1, 3, 6, 1, 4, 1, 6345, 1, 1, 6
cconfig	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7
csnmpd	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 1
csnmpdEnb	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 1, 1
csnmpdReadCommunity	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 1, 2
csnmpdSetCommunity	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 1, 3
csnmpdSetCommunityCrypt	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 1, 4
chttpd	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 2
chttpdEnb	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 2, 1
csamba	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 3
csambaEnb	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 3, 1
cnovell	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 4
cnovellEnb	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 4, 1
cnovellFrmType	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 4, 2
cnovellNwServer	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 4, 3
cnovellPrtName	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 4, 4
cnovellQueueName	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 4, 5
csmtpt	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 5
csmtptEnb	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 5, 1
csmtptEmailAddr	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 5, 2
csmtptSMTPAddr	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 5, 3
csmtptTrap	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 5, 4
csmtptEmailMittAddr	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 5, 6
csecurity	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 6
csecUser	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 6, 1
csecPwd	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 6, 2
csecPwdCrypt	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 6, 3
cipds	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 7
cipdsEnb	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 7, 1
cipdsPort	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 7, 2

Appendix E. The Remote Printer Management Utility

The Remote Printer Management Utility (RPMU) is a software tool for network administrators that allows the configuration and control of Printronix Company printers remotely connected to the Ethernet LAN.

With this tool the installed printers may be controlled, configured and organized easily.

The main features are:

Device Discovery	Searches for the devices within a range of IP addresses.
Printer Organization	The printers connected to the network can be organized into logical groups in a hierarchically structured tree.
Printer Status	Report Checks the printer's status and reports alarms.
Printer Configuration	The remotely connected printers may be configured as needed from the administrator's workstation.
Firmware Updating	Provides a firmware downloading function to upgrade both the base and the LAN card firmware.
Remote Operator Panel	Provides a virtual operator panel for the remotely connected
Management	printer at the administrator's workstation that allows to perform all functions normally achieved pressing the operator panel keys.

The Remote Printer Management Utility also provides the basic status management for third-party printers compliant to the standard MIB objects.

Operating System Compatibility

The Remote Printer Management Utility is a Java™ based application and can be run on any platform supporting the Java Run Time Environment version 1.6 or newer.

Software Installation and Documentation

The Remote Printer Management Utility software and Administrator's Guide can be downloaded from our website at : www.printronix.com

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Appendix F. Print Driver Support

Microsoft Windows drivers, IBM pSeries AIX color files, and IBM System i workstation customization objects can be downloaded from our website: www.Printronix.com

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Appendix G. S809 Bar Code and OCR Printing Options

This appendix contains information about the options that are available for printing bar codes and Optical Character Recognition (OCR) characters. The bar code charts detail the element (bar/space) width options, the wide-to-narrow element ratios, the magnification percentages, and the characters printed per inch plus whether the bar codes can be printed in low-contrast or high-contrast modes. Low-contrast mode

provides the best throughput, while high-contrast mode results in the best bar code printing quality. The OCR section contains the Optical Character Recognition symbol subsets that can be printed.

Bar Code Printing Options Charts

Keep the following statements in mind when printing bar codes.

- All bar codes printed by the S809 Printer can print in high-contrast mode. Not all of them, however, can print in low-contrast mode. If you specify low-contrast mode for a bar code that is not supported in that mode, the printer will not return an error but will default to high-contrast mode instead.
- Vertically-rotated bar codes may not consistently meet bar/space width specifications. Users should test for application suitability.
- Bar codes printed in low-contrast mode may not consistently meet specifications. Users should test for application suitability.

Table 7. Bar Code Printing Options for Non-UPC Family Bar Codes

Bar Code Type	Narrow Element Width Options (mils)	Wide-to-Narrow Element Ratio	Low-Contrast Mode - Horizontal	Low-Contrast Mode - Vertical	Bar Code Char. Per Inch (CPI)
Code 3 of 9	13.9	2:1	Yes	Yes	5.54
	13.9	2.5:1	Yes	Yes	4.97
	13.9	3:1	Yes	Yes	4.5
	16.7	2:1	Yes	No	6.65
	16.7	2.5:1	Yes	No	5.95
	16.7	3:1	Yes	No	5.4
	20.8	2:1	Yes	Yes	3.69
	20.8	2.5:1	Yes	Yes	3.2
	20.8	3:1	Yes	Yes	3.0
	27.8	2:1	Yes	Yes	2.77
	27.8	2.5:1	Yes	Yes	2.48
	27.8	3:1	Yes	Yes	2.25
Interleaved 2 of 5	13.9	2:1	Yes	Yes	10.29
	13.9	2.5:1	Yes	Yes	9.0
	13.9	3:1	Yes	Yes	8.0
	16.7	2:1	Yes	No	12.35
	16.7	2.5:1	Yes	No	10.8
	16.7	3:1	Yes	No	9.6
	20.8	2:1	Yes	Yes	6.86
	20.8	2.5:1	Yes	Yes	5.76
	20.8	3:1	Yes	Yes	5.33
	27.8	2:1	Yes	Yes	5.14
	27.8	2.5:1	Yes	Yes	4.5
	27.8	3:1	Yes	Yes	4.0

Table 7. Bar Code Printing Options for Non-UPC Family Bar Codes (continued)

Bar Code Type	Narrow Element Width Options (mils)	Wide-to-Narrow Element Ratio	Low-Contrast Mode - Horizontal	Low-Contrast Mode - Vertical	Bar Code Char. Per Inch (CPI)
Industrial 2 of 5	13.9	2:1	Yes	Yes	6.0
	13.9	2.5:1	Yes	Yes	5.54
	13.9	3:1	Yes	Yes	5.14
	16.7	2:1	Yes	No	7.2
	16.7	2.5:1	Yes	No	6.65
	16.7	3:1	Yes	No	6.17
	20.8	2:1	Yes	Yes	4.0
	20.8	2.5:1	Yes	Yes	3.6
	20.8	3:1	Yes	Yes	3.43
	27.8	2:1	Yes	Yes	3.0
	27.8	2.5:1	Yes	Yes	2.77
	27.8	3:1	Yes	Yes	2.57
Matrix 2 of 5	13.9	2:1	Yes	Yes	9.0
	13.9	2.5:1	Yes	Yes	8.0
	13.9	3:1	Yes	Yes	7.2
	16.7	2:1	Yes	No	10.8
	16.7	2.5:1	Yes	No	9.6
	16.7	3:1	Yes	No	8.64
	20.8	2:1	Yes	Yes	6.0
	20.8	2.5:1	Yes	Yes	5.14
	20.8	3:1	Yes	Yes	4.8
	27.8	2:1	Yes	Yes	4.5
	27.8	2.5:1	Yes	Yes	4.0
	27.8	3:1	Yes	Yes	3.6
MSI	13.9	2:1	Yes	Yes	6.0
	13.9	2.5:1	Yes	Yes	5.14
	13.9	3:1	Yes	Yes	4.5
	16.7	2:1	Yes	No	7.6
	16.7	2.5:1	Yes	No	6.17
	16.7	3:1	Yes	No	5.4
	20.8	2:1	Yes	Yes	4.0
	20.8	2.5:1	Yes	Yes	3.27
	20.8	3:1	Yes	Yes	3.0
	27.8	2:1	Yes	Yes	3.0
	27.8	2.5:1	Yes	Yes	2.57
	27.8	3:1	Yes	Yes	2.25
Codabar	13.9	2:1	Yes	Yes	6.55 - 7.2
	13.9	2.5:1	Yes	Yes	5.76 - 6.55
	13.9	3:1	Yes	Yes	5.14 - 6.0
	16.7	2:1	Yes	No	7.86 - 8.64
	16.7	2.5:1	Yes	No	6.91 - 7.86
	16.7	3:1	Yes	No	6.17 - 7.2
	20.8	2:1	Yes	Yes	4.36 - 4.8
	20.8	2.5:1	Yes	Yes	4.00 - 4.5
	20.8	3:1	Yes	Yes	3.43 - 4.0
	27.8	2:1	Yes	Yes	3.27 - 3.6
	27.8	2.5:1	Yes	Yes	2.88 - 3.27
	27.8	3:1	Yes	Yes	2.57 - 3.0
Code 128	13.9	N/A	Yes	Yes	6.55
	16.7	N/A	Yes	No	7.86
	20.8	N/A	Yes	Yes	4.36
	27.8	N/A	Yes	Yes	3.27 (See Note)

Table 7. Bar Code Printing Options for Non-UPC Family Bar Codes (continued)

Bar Code Type	Narrow Element Width Options (mils)	Wide-to-Narrow Element Ratio	Low-Contrast Mode - Horizontal	Low-Contrast Mode - Vertical	Bar Code Char. Per Inch (CPI)
POSTNET	21.2	N/A	Yes	Yes	4.3
Note: The CPI shown for Code 128 is for code sets A or B. The CPI for code set C is approximately double the values shown.					

Table 8. Bar Code Printing Options for UPC Family Bar Codes

Bar Code Type	Narrow Element Width Options (mils)	Wide-to-Narrow Element Ratio	Low-Contrast Mode - Horizontal	Low-Contrast Mode - Vertical	Bar Code Char. Per Inch (CPI)
UPC A	13.9	1.07	Yes	Yes	10.29
	16.7	1.07	Yes	No	12.35
UPC E	13.9	1.07	Yes	Yes	10.29
	16.7	1.07	Yes	No	12.35
UPC/EAN-2	13.9	1.07	Yes	Yes	10.29
	16.7	1.07	Yes	No	12.35
UPC/EAN-5	13.9	1.07	Yes	Yes	10.29
	16.7	1.07	Yes	No	12.35
EAN 8	13.9	1.07	Yes	Yes	10.29
	16.7	1.07	Yes	No	12.35
EAN-13	13.9	1.07	Yes	Yes	10.29
	16.7	1.07	Yes	No	12.35

Optical Character Recognition (OCR) Printing

OCR Symbols

The S809 prints a comprehensive set of OCR-A and OCR-B characters derived from standards developed by the International Standards Organization (ISO) and the American National Standards Institute (ANSI). All OCR character shapes produced by the S809 Printer are not identical with the shapes defined in these standards. Users should test OCR printing with their scanning equipment to verify satisfactory performance.

OCR Scanning

Printronix Company has tested the following OCR symbol subsets for readability:

Table 9. OCR Symbol Subsets

OCR-A NRMA	OCR-A Data Entry	OCR-A Eurobanking	OCR-A Money Transfer	OCR-B ECMA	OCR-B Money Transfer
0	0	0	0	0	0
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9
A	A	C	hook	C	>
B	B	P	fork	E	+
B	C	R	chair	N	<
C	D	U		S	
D	M	X		T	
M	N	Z		V	
N	P	/		X	
P	R	+		Z	
R	U	#		>	
U	X	hook		<	
X	Y	fork			
Y	>	chair			
>	/				
/	+				
"					

Appendix H. Configuration Menu Lockout

Configuration Menu Lockout should be used by the application programmer or printer operator to lock the Configuration Menu when you want to prevent a casual operator from changing parameter values that have been set for print jobs.

To set Configuration Menu Lockout:

1. Press ON LINES if the READY indicator is on. The printer goes to the NOT READY state.
2. In the NOT READY state, press and hold ALTERNATE + MACRO + ONLINE keys in the same time.
The printer displays MENU LOCKED.
3. To unlock the Configuration Menu repeat the step 1 and 2. The printer display MENU UNLOCKED.
Press STOP

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Appendix I Addendum (Bar Codes)

The following chapter integrates the Bar Code information already present in this manual adding the Intelligent Mail Barcode explanation with examples in different emulations.

Furthermore it describes some features in specific Emulation Commands present in the firmware but not described in the previous chapters.

Bar Code Mode

The S809 printer has three different Bar Code Modes selectable in the Power-on Configuration Setup.

- 1) **Native** selection enables bar code printing using :
 - The Native commands as indicated in chapter 2 and also in this chapter as examples
 - MTPL commands as indicated later on in this chapter.
- 2) **Alt.1** selection enables bar code printing using :
 - EPSON or IBM commands as indicated in chapter 1.
- 3) **Alt.2** selection enables bar code printing using:
 - SEIKOSHA commands as indicated later on in this chapter.

The S809 can print Bar Code using also :

- ANSI commands as indicated in chapter 3 (see example in this chapter)

USPS Intelligent Mail Bar Code 4-state

The S809 can print the USPS Intelligent Mail Bar Code 4-state in different emulations.

The 4-statebarcode data must contains only ASCII numeric (from 0 to 9) and must be converted into only 0, 1, 2 or 3. Each number represents one of the four possible bars.

The Intelligent Mail barcode is a 65-bar Postal Service™ barcode used to sort and track letters and flats. It allows mailers to use a single barcode to participate in multiple Postal Service programs simultaneously, expands mailers' ability to track individual mail pieces, and provides greater mail stream visibility.

The Intelligent Mail barcode consists of a 20-digit tracking code (Barcode Identifier, Service Type Identifier, Mailer Identifier, and Serial Number) and a Routing Code (ZIP Code™) field of up to 11 digits.

An encoder converts the digits into a 65-character string representing the bars of the IMb® tracking code,

EXAMPLE:

Service Type ID of 270 (First-Class Mail®, Intelligent Mail Full-Service option, with IMb Tracing® service, no address correction), Mailer ID 123456, uniquely identified by Serial Number 200800001, going to ZIP Code 98765-4321(01), is encoded like this:

Digit String:

0027012345620080000198765432101

Intelligent Mail barcode encoder > Encoded string (T=Tracker, F=Full Bar, A=Ascender, D=Descender):

TTFAFDADTFFFADTAFAFTTDATDFAAFTDAFDFFDATFDFDDDDFADFFDADDTDDTTDAT



More information on website: <https://postalpro.usps.com/mailing/intelligent-mail-barcode>

Intelligent Mail Bar Code 4-state with Native Commands Mode (Native Bar Code Mode)

DC4 DC4 ESC ! h “ f EM

UPPS Bar Code Selection.

ASCII Code	DC4 DC4 ESC ! h “ f F r EM
Hexadecimal Value	X'14' X'14' X'1B' X'21' h X'22' f F r X'19'
Decimal Value	20 20 27 33 h 34 f F r 25

h = Bar Code Height at n/6", 1 < h < 30

f = Readable character printing

f = 0 printing disabled

f = 1 printing enabled, characters below barcode, justified position

f = 21 printing enabled, characters above barcode, justified position

f = 81 printing enabled, characters below barcode, middle position

f = A1 printing enabled, characters above barcode, middle position

F = Font selection for the printable characters

- 0 Selected font by r value
- 1 Default font for text
- 1 Special font for OCR-A or OCR-B bar codes according to the t value
- 3 Special font for OCR-A bar codes
- 4 Special font for OCR-B bar codes

r = Bar code rotation

r Selection

- 0 No rotation
- 1 Rotation at 0°
- 2 Rotation at 90°
- 3 Rotation at 180°
- 4 Rotation at 270°

EM = Check sequence terminator

Intelligent Mail Bar Code 4-state with Epson/IBM Emulations Commands (Alt. 1 Bar Code Mode)

See chapter 1, pages 54, 55 for details of these commands.

Remark: these commands are not handled in DEC emulations.

ESC [v n m

Sets Barcode parameters. (IBM -Epson)

ASCII Code	ESC [vnm
Hexadecimal Value	X'1B' X'5B' X'76' nm
Decimal Value	27 91 118 nm

Set barcode parameters according to the table below. Parameter values that are not supported result in the command being ignored.

n	Parameter Description	m values
0	Barcode style IMB 4-state	X '22', 34 dec
2	Human readable line	0=disable 1, 21 =enable below barcode 81, A1 =enable above barcode
8	Rotation and HRC font	0.1=no rotation and current font for HRC 2=90 3=180 4=270 and special HRC font
11	HRC font for rotate barcode	3=OCRA 4=OCRB

Intelligent Mail Bar Code 4-state with MTPL Commands (Native Bar Code Mode)

ESC [9 SP k CR

Sets bar code parameters (BC).

ASCII Code	ESC [9 SP k CR
Hexadecimal Value	X'1B' X'5B' X'39' X'20' X'6B' X'0D'
Decimal Value	27 91 57 32 109 13

In next pages a specific sub-chapter describes the MTPL (Mannesmann-Tally Printer Language) commands which can be handled by S809 printer.

Intelligent Mail Bar Code 4-state with ANSI Emulation Commands

See chapter 3, pages 86 and 87 for details of these commands.

ESC [p1; ; ; pn }

Sets bar code parameters (BC).

ASCII Code	ESC [p1; pn }
Hexadecimal Value	X'1B' X'5B' p1 X'3B' pn X'7D'
Decimal Value	27 91 p1 59 pn 125

This command allows selection of the bar code characteristics such as style height, symbol rotation and so on. The command ESC [3 t enables the bar code mode while ESC [0 t disables the mode.

p1: **Bar code style**

p1 **FUNCTION**

X '33 34', dec 48 49 IMB 4-state

p3: **Human Readable Input (HRI)**

p3 **FUNCTION**

0 Disables printing of the HRI
1 Enables printing of the HRI

p9: **Rotation**

p9 **FUNCTION**

0 0 degrees using current font
1 0 degrees using special HRI font
2 90 degrees using special HRI font
3 180 degrees using special HRI font
4 270 degrees using special HRI font

USPS Intelligent Mail Bar Code 4-state Examples

The following are samples for USPS Intelligent Mail Bar Code 4-state printed with the S809 Printer with related hex commands:



```

ASCII: Dc4Dc4Esc!03"00Em Dc4Dc4Esc( "data" Em
Hex : 14141b2103220019 14141b28 "data" 19

-

00 270 123456 200800001 98765 4321 01

ASCII: Dc4Dc4Esc!03"010401Em Dc4Dc4Esc( "data" Em
Hex : 14141b21032201040119 14141b28 "data" 19

-

00 270 123456 200800001 98765 4321 01

```

```

ASCII: Dc4Dc4Esc!03"010401Em Dc4Dc4Esc( "data" Em
Hex: 14141b21032201040119 14141b28 "data" 19

```

Figure 71. Intelligent Mail Bar Code in Native Commands Example (Bar Code Mode Native)



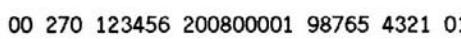
```

ASCII: Esc[v00" Esc[01FF Esc[v0200 Esc[v0801 Esc[v1104 Esc[u01 "data" Esc[u00
Hex : 1B5B760022 1B5B7601FF 1B5B760200 1B5B760801 1B5B761104 1B5B7501 "data" 1B5B7500

-

00 270 123456 200800001 98765 4321 01

ASCII: Esc[v00" Esc[01FF Esc[v0200 Esc[v0801 Esc[v1104 Esc[u01 "data" Esc[u00
Hex : 1B5B760022 1B5B7601FF 1B5B760201 1B5B760801 1B5B761104 1B5B7501 "data" 1B5B7500

-

00 270 123456 200800001 98765 4321 01

```

```

ASCII: Esc[v00" Esc[01FF Esc[v0200 Esc[v0801 Esc[v1104 Esc[u01 "data" Esc[u00
Hex : 1B5B760022 1B5B7601FF 1B5B760221 1B5B760801 1B5B761104 1B5B7501 "data" 1B5B7500

```

Figure 72. Intelligent Mail Bar Code in Epson/IBM Commands Example (Bar Code Mode Alt. 1)

Print Intelligent Mail Barcode with MTPL Commands
(Barcode Mode Native)



ASCII: Esc[?11~Esc[9Spk "data" Cr
Hex : 1B5B3F31317E 1B5B39206B "data" 0D Esc[?10

Figure 73. Intelligent Mail Bar Code in ANSI Commands Example



ASCII: Esc[34;;0;;;;;1;1;}
HEX : 1B5B33343B3B303B3B3B3B3B313B313B7D



00 270 123456 200800001 98765 4321 01

ASCII: Esc[34;;1;;;;;1;1;}
HEX : 1B5B33343B3B313B3B3B3B3B3B313B313B7D

Figure 74. Intelligent Mail Bar Code in MTPL Commands Example (Bar Code Mode Alt. 1)

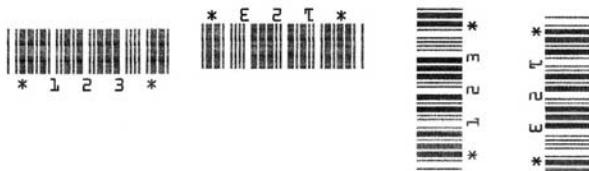
Bar Codes handled in NATIVE Commands (Native Bar Code Mode)

The S809 integrates in the firmware the handling of the Bar Codes with the NATIVE commands.

The complete and detailed information for these commands can be found on chapter 2 of this Programmer Manual. Here are reported some examples how these commands work.

PRINT BAR CODE 39 in different formats and sizes with NATIVE COMMANDS

Rotation



Height



HRC No



spacing=def.



spacing=3x6



spacing=4x12



spacing=5x10



spacing=6x11



spacing=7x14



spacing=8x15



spacing=9x18



spacing=9x36



Figure 75. Bar Code Examples with NATIVE Commands Example (Bar Code Mode Native)

0000	14 14 1B 40 0D 0A 50 52 49 4E 54 20 42 41 52 20	PRINT BAR
0001	43 4F 44 45 20 33 39 20 69 6E 20 64 69 66 66 65	CODE 39 in different formats and sizes with NATIVE COMMANDS
0002	72 65 6E 74 20 66 6F 72 6D 61 74 73 20 61 6E 64	Rotation
0003	20 73 69 7A 65 73 20 77 69 74 68 20 4E 41 54 49	!(*123*↓)
0004	56 45 20 43 4F 4D 4D 41 4E 44 53 0A 0D 0A 0D 0A	VE COMMANDS
0005	52 6F 74 61 74 69 6F 6E 0D 0A 0A 0A 14 14 1B 21	Rotation
0006	03 14 01 00 01 19 14 14 1B 28 2A 31 32 33 2A 19	!(*123*↓)
0007	20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20	!(*123*↓)
0008	20 20 20 14 14 1B 21 03 14 01 00 03 19 14 14 1B	!(*123*↓)
0009	28 2A 31 32 33 2A 19 0D 0A 0A 0A 0A 0A 0A 0A 0A	!(*123*↓)
000A	0A 1B 6A 7B 20 20 20 20 20 20 20 20 20 20 20 20	j{
000B	20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20	!(*123*↓)
000C	20 20 20 20 20 20 20 20 20 20 20 20 14 14 1B 21	!(*123*↓)
000D	03 14 01 00 02 19 14 14 1B 28 2A 31 32 33 2A 19	!(*123*↓)
000E	0D 0A 1B 6A FF 20 20 20 20 20 20 20 20 20 20 20	j
000F	20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20	!(*123*↓)
0010	20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20	!(*123*↓)
0011	20 20 20 20 20 20 20 20 20 20 20 20 20 20 14 14	!(*123*↓)
0012	1B 21 03 14 01 00 04 19 14 14 1B 28 2A 31 32 33	!(*123*↓)
0013	2A 19 0D 0A 0A 0A 0A 0A 0A 0A 0A 0A 0A 48 65 69 67	Height
0014	68 74 0D 0A 14 14 1B 21 01 14 01 00 01 19 14 14	!(*123*↓)
0015	1B 28 2A 31 32 33 2A 19 0D 20 20 20 20 20 20 20 20	!(*123*↓)
0016	20 20 20 20 20 20 20 20 20 20 20 14 14 1B 21 02	!(*123*↓)
0017	14 01 00 01 19 14 14 1B 28 2A 31 32 33 2A 19 0D	!(*123*↓)
0018	20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20	!(*123*↓)
0019	20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20	!(*123*↓)
001A	20 20 20 20 1B 6A 20 14 14 1B 21 03 14 01 00 01	j !(*123*↓)
001B	19 14 14 1B 28 2A 31 32 33 2A 19 0D 20 20 20 20	!(*123*↓)
001C	20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20	!(*123*↓)
001D	20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20	!(*123*↓)
001E	20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20	!(*123*↓)
001F	20 20 1B 6A 3C 14 14 1B 21 04 14 01 00 01 19 14	!(*123*↓)
0020	14 1B 28 2A 31 32 33 2A 19 0D 20 20 20 20 20 20	!(*123*↓)
0021	20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20	!(*123*↓)
0022	20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20	!(*123*↓)
0023	20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20	!(*123*↓)
0024	20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20	!(*123*↓)
0025	20 20 1B 6A 58 14 14 1B 21 05 14 01 00 01 19 14	!(*123*↓)
0026	14 1B 28 2A 31 32 33 2A 19 0D 0D 0A 0D 48 52 43	HRC
0027	20 4E 6F 0D 0A 14 14 1B 21 03 14 00 01 01 00 00	No!(*123*↓)
0028	19 14 14 1B 28 1D 21 2A 31 32 33 2A 19 0D 0A 0A	!(*123*↓)
0029	73 70 61 63 69 6E 67 3D 64 65 66 2E 0D 0A 14 14	spacing=def.
002A	1B 21 03 14 01 01 00 00 19 14 14 1B 28 1D 21	!(*123*↓)
002B	2A 31 32 33 2A 19 0D 0A 0A 73 70 61 63 69 6E 67	*123*↓
002C	3D 33 78 36 0D 0A 14 14 1B 21 03 14 01 01 01 00	spacing = 3x6!(*123*↓)
002D	00 03 03 06 06 03 19 14 14 1B 28 1D 21 2A 31 32	*123*↓
002E	33 2A 19 0A 0D 0A 73 70 61 63 69 6E 67 3D 34 78	spacing = 4x
002F	31 32 0D 0A 14 14 1B 21 03 14 01 01 00 00 04	12!(*123*↓)
0030	04 09 09 03 19 14 14 1B 28 1D 21 2A 31 32 33 2A	!(*123*↓)
0031	19 0A 0D 0A 73 70 61 63 69 6E 67 3D 35 78 31 30	!(*123*↓)
0032	0D 0A 14 14 1B 21 03 14 01 01 01 00 00 05 05 0A	!(*123*↓)
0033	0A 03 19 14 14 1B 28 1D 21 2A 31 32 33 2A 19 0A	!(*123*↓)
0034	0D 0A 73 70 61 63 69 6E 67 3D 36 78 31 31 0D 0A	!(*123*↓)
0035	14 14 1B 21 03 14 01 01 01 00 00 06 06 0B 0B 03	!(*123*↓)
0036	19 14 14 1B 28 1D 21 2A 31 32 33 2A 19 0A 0D 0A	!(*123*↓)
0037	73 70 61 63 69 6E 67 3D 37 78 31 34 0D 0A 14 14	!(*123*↓)
0038	1B 21 03 14 01 01 01 00 00 07 07 0E 0E 03 19 14	!(*123*↓)
0039	14 1B 28 1D 21 2A 31 32 33 2A 19 0A 0D 0A 73 70	!(*123*↓)
003A	61 63 69 6E 67 3D 38 78 31 35 0D 0A 14 14 1B 21	!(*123*↓)
003B	03 14 01 01 01 00 00 08 08 0F 0F 03 19 14 14 1B	!(*123*↓)
003C	28 1D 21 2A 31 32 33 2A 19 0A 0D 0A 73 70 61 63	!(*123*↓)
003D	69 6E 67 3D 39 78 31 38 0D 0A 14 14 1B 21 03 14	!(*123*↓)
003E	01 01 01 00 00 09 09 12 12 03 19 14 14 1B 28 1D	!(*123*↓)
003F	21 2A 31 32 33 2A 19 0A 0D 0A 73 70 61 63 69 6E	!(*123*↓)
0040	67 3D 39 78 33 36 0D 0A 14 14 1B 21 03 14 01 01	g=9x36!(*123*↓)
0041	01 00 00 09 09 24 24 03 19 14 14 1B 28 1D 21 2A	!(*123*↓)
0042	31 32 33 2A 19 0D 0A 0A 0A 0A 0A 0A 0A 0A 0A 0C	!(*123*↓)

Figure 76. Hex Dump of example on figure 75

BARCODE SAMPLES with NATIVE Commands

EAN-8



EAN-13



UPC-A



UPC-E



2 di 5 Interleaved



2 of 5 Industrial



2 of 5 Matrix



Code 39



CODABAR



CODE - 128



Figure 77. Bar Code Examples with NATIVE Commands Example (Bar Code Mode Native)

CODE - 128



POSTNET



USPS INTELLIGENT MAIL BARCODE



UPC-EAN 2



UPC-EAN 5



2 of 5 (3BAR)



CODE 93



Code 11



Code-GP



CODE BCD



Figure 78. Bar Code Examples with NATIVE Commands Example (Bar Code Mode Native)



Figure 79. Bar Code Examples with NATIVE Commands Example (Bar Code Mode Native)

0000	0D	0A	1B	78	01	42	41	52	43	4F	44	45	20	20	20	53	J0←x@BARCODE S
0001	41	4D	50	4C	45	53	20	77	69	74	68	20	4E	41	54	49	AMPLES with NATI-
0002	56	45	20	43	6F	6D	6D	61	6E	64	73	0D	0A	0A	0A	45	VE Commands J0←E
0003	41	4E	2D	38	0D	0A	14	14	1B	21	03	01	01	00	01	19	AN-8 J0←!▼@!
0004	14	14	1B	28	31	32	33	34	35	36	37	30	19	0D	0A	0A	J0←(1234567012J0←
0005	0A	45	41	4E	2D	31	33	0D	0A	14	14	1B	21	03	02	01	EAN-13 J0←!▼@!
0006	19	0D	0A	14	14	1B	28	33	34	35	36	37	38	39	30	31	J0←(345678901
0007	32	33	34	30	19	0D	0A	0A	0A	55	50	43	2D	41	0D	0A	2340J0←UPC-A
0008	14	14	1B	21	03	03	01	19	0D	0A	20	14	14	1B	28	31	J0←!▼@!
0009	32	33	34	35	36	37	38	39	30	31	32	19	0D	0A	0A	0A	23456789012J0←
000A	55	50	43	2D	45	0D	0A	14	14	1B	21	04	04	01	20	20	UPC-E J0←!▼@!
000B	01	20	19	14	14	1B	28	32	32	33	33	30	30	30	30	30	J0←(223300000
000C	39	19	0D	0A	0A	0A	32	20	64	69	20	35	20	49	6E	74	91J0←2 di 5 Int
000D	65	72	6C	65	61	76	65	64	0D	0A	14	14	1B	21	03	11	erleaved J0←!▼@!
000E	01	02	19	0D	0A	20	14	14	1B	28	31	32	33	34	35	36	J0←(123456
000F	37	38	39	30	31	32	19	0D	0A	0A	32	20	6F	66	20	789012J0← of	
0010	35	20	49	6E	64	75	73	74	72	69	61	6C	0D	0A	14	14	5 Industrial J0←
0011	1B	21	03	12	01	19	0D	0A	14	14	1B	28	31	32	33	34	←!▼@!J0←!▼@!(1234
0012	35	36	37	38	39	30	31	32	19	0D	0A	0A	0A	32	20	6F	56789012J0←0
0013	66	20	35	20	4D	61	74	72	69	78	0D	0A	14	14	1B	21	f 5 Matrix J0←!
0014	03	13	01	19	0D	0A	14	14	1B	28	31	32	33	34	35	36	J0←!▼@!(123456
0015	37	38	39	30	31	32	19	0D	0A	0A	0A	43	6F	64	65	20	789012J0←Code
0016	33	39	14	14	1B	4A	01	01	0D	0A	14	14	1B	21	03	14	39J0←J0←!▼@!(1234
0017	01	19	0D	0A	14	14	1B	28	2A	41	42	43	44	45	31	32	J0←!▼@!(*)ABCDE12
0018	33	34	35	36	37	38	39	30	2A	19	0D	0A	0A	43	4F	34567890*J0←CO	
0019	44	41	42	41	52	0D	0A	14	14	1B	21	03	16	02	19	0D	DABAR J0←!▼@!
001A	0A	14	14	1B	28	2A	31	32	33	34	35	36	37	38	39	30	J0←(*1234567890
001B	31	32	2A	19	0D	0A	0A	0A	43	4F	44	45	20	2D	20	31	12*J0←CODE - 1
001C	32	38	0D	0A	14	14	1B	21	03	17	01	19	0D	0A	20	14	28J0←!▼@!
001D	14	1B	28	31	32	33	34	35	36	37	38	39	30	31	32	9D	
001E	46	34	35	32	33	35	33	35	34	32	30	33	34	99	0D	FA523535420340J0←	
001F	0A	0A	50	4F	53	54	4E	45	54	0D	0A	14	14	1B	21	03	POSTNET J0←!▼@!
0020	18	01	19	0D	0A	14	14	1B	28	31	32	33	34	35	36	37	J0←!▼@-(1234567
0021	38	39	30	19	0D	0A	0A	0A	55	53	50	53	20	49	4E	54	8901J0←USPS INT
0022	45	4C	49	47	45	4E	54	20	4D	41	49	4C	20	42	41	41	ELLIGENT MAIL BA
0023	52	43	4F	44	45	0D	0A	14	14	1B	21	03	22	01	19	0D	J0←!▼@!RCODE-(12345678901
0024	0A	14	14	1B	28	31	32	33	34	35	36	37	38	39	30	31	2345678901234567
0025	32	33	34	35	36	37	38	39	30	31	32	33	34	35	36	37	8901J0←UPC-EAN
0026	38	39	30	31	19	0D	0A	0A	55	50	43	2D	45	41	4E	2J0←!▼@!▼@! □ ↓	
0027	20	32	0D	0A	14	14	1B	21	03	05	01	20	20	01	20	19	J0←!▼@-(121J0←UPC
0028	0D	0A	14	14	1B	28	31	32	19	0D	0A	0A	55	50	43	-EAN 5 J0←!▼@!	
0029	2D	45	41	4E	20	35	0D	0A	14	14	1B	21	03	06	01	20	-EAN 5 J0←!▼@!
002A	20	01	20	19	0D	0A	14	14	1B	28	31	32	33	34	35	19	0 J0←(123451
002B	0D	0A	0A	32	20	6F	66	20	35	20	28	33	42	41	52	J0←0002 of 5 (3BAR	
002C	29	0D	0A	14	14	1B	21	03	08	01	20	20	01	20	19	0D	
002D	0A	14	14	1B	28	31	32	33	34	36	37	38	39	30	31	32	
002E	33	34	35	19	0D	0A	0A	20	43	4F	44	45	20	39	33	345↓J0←CODE 93	
002F	0D	0A	14	1B	21	03	0F	01	19	0D	0A	14	14	1B	28	31	J0←!▼@!▼@!J0←MSI
0030	31	0D	32	1B	33	19	20	41	1D	42	11	34	75	35	99	0D	1J2←3↓ A←B←4u50J0←
0031	0A	0A	0A	43	6F	64	65	20	31	31	0D	0A	14	14	1B	21	00Code 11J0←!▼@!
0032	03	0E	01	19	0D	0A	14	14	1B	28	31	32	33	2D	34	35	0J0←!▼@!(123-45
0033	36	37	38	39	19	0D	0A	0A	43	6F	64	65	2D	47	50	6789↓J0←Code-GP	
0034	20	20	0D	0A	14	14	1B	21	03	10	01	20	20	01	20	19	J0←!▼@!▼@! □ ↓
0035	0D	0A	14	14	1B	28	30	30	31	30	30	30	31	31	30	30	J0←!▼@!(0010001110
0036	19	0D	0A	0A	43	4F	44	45	20	42	43	44	20	0D	0A	4	J0←000CODE BCD 0A
0037	14	14	1B	21	03	12	01	20	20	01	20	19	0D	0A	14	14	J0←!▼@! □ ↓
0038	1B	28	31	32	33	34	35	19	0D	0A	0A	4D	53	49	20	20	←(12345↓J0←MSI
0039	20	20	20	20	20	20	20	20	0D	0A	14	14	1B	13	03	0	J0←!▼@! □ ↓
003A	08	01	20	20	01	20	19	0D	0A	14	14	1B	28	31	32	33	0 @ @ J0←(123
003B	34	35	36	37	38	39	30	31	32	33	34	35	37	39	19	0D	45678901234579↓J0←
003C	0A	0A	0A	43	32	35	2D	42	49	44	0D	0A	14	14	1B	21	000C25-BID J0←!▼@!
003D	03	10	01	19	0D	0A	14	14	1B	28	31	32	33	34	35	36	0 J0←!▼@!(123456
003E	37	38	39	19	0D	0A	0A	43	6F	64	65	20	31	31	0D	0	789↓J0←Code 11J0←
003F	0A	14	14	1B	21	03	0E	01	19	0D	0A	14	14	1B	28	31	0 J0←!▼@!J0←!▼@!(1
0040	32	33	2D	34	35	36	37	38	39	19	0D	0A	1B	78	00	0C	23-456789↓J0← x

Figure 80. Hex Dump of example on figures 77, 78, 79

Bar Codes handled in MTPL Commands (Native Bar Code Mode)

The S809 integrates in the firmware a sub-set handling of the MTPL emulation Bar Codes commands.

The complete and detailed information for these commands can be found on specific MTPL Programmer Manual available on web.

Bar Code Description

Before the data, which contain the Barcode information, are transmitted to the printer, the Barcode header must be sent. Otherwise the standard parameter values are used (see section "Header Format"). In the header, the printing parameters, the Barcode size and the Barcode Type are defined. This header only needs to be transferred once, unless settings are to be changed or the printer has been turned off.

Header Format Format: SUB [F] a [n] [:xyz] [:p] EM

[] Specification is optional

x, y unregarded at EAN/UPC-Barcode!

For Code 128 and EAN 128 (Type S+T) only the X parameter is valid. This is automatically used for the Y parameter. The Z parameter is not evaluated.

Meaning of the characters:

SUB (hex.1A, dec.26)	Start header
F	Print feature
	SP (hex. 20, dec. 32): HRI OFF, Normal Print, Double Pass, Unidirectional (def.)
	! (hex. 22, dec. 34): HRI ON, Normal Print, Double Pass, Unidirectional
a ASCII a = "A"..."S"	Barcode Types (def. "A", see later on)
n ASCII n = "0"..."90"	Barcode height in n/6 inch. At n="0" the Barcode height equals to 1/12 inch. (def. 1)
;	Separation character
x ASCII x = "0"..."3"	Width of the narrow bar (def.0)
y ASCII y = "0"..."3"	Width of the narrow space (def.0)
z ASCII z = "0"..."3"	Ratio of wide to narrow (def.0)
p ASCII p = "0"..."9"	Barcode orientation (def. 0, horizontal)
EM (hex.19, dec.25)	End of header

Barcode Types

A = 2/5 matrix (default)	B = 2/5 industrial	C = 2/5 interleaved
D = Code 11	E = Code BCD matrix	F = Code 39
G = Codabar	H = EAN 8 with HRI	I = EAN 8 without HRI
J = 2/5 matrix (default)	K = EAN 13 with HRI	L = EAN 13 without HRI
M = MSI/modified Plessey	N = UPC A with HRI	O = UPC A without HRI
P = UPC E with HRI	Q = UPC E without HRI	S = Code 128
T = EAN 128/GSI-128		

Post Office Barcode Types

US Postnet Barcode	= ESC [1 SP p
Planet Barcode	= ESC [2 SP p <data> EM
KIX Barcode	= ESC [2 SP k
Royal Mail Customer Barcode	= ESC [1 SP k
USPS Intelligent Mail Barcode (IMB)	= ESC [9 SP k

MTPL Bar Codes Commands Examples

Print Bar Codes with MTPL commands
(Barcode Mode Native)

Code 2/5 Matrix



Code 2/5 Industrial



Code 2/5 Interleaved



Code 11



BCD matrix



Code 39



CODABAR



EAN 8 with HRI



EAN 8 without HRI



EAN 13 with HRI



EAN 13 without HRI



Code MSI/modified Plessey



Figure 81. Bar Code Examples with MTPL Commands (Bar Code Mode Alt. 1)

Code UPCA with HRI



Code UPCA without HRI



Code UPCE with HRI



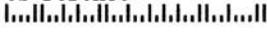
Code UPCE without HRI



Code 128



US Postnet



US Postnet



Figure 82. Bar Code Examples with MTPL Commands (Bar Code Mode Alt. 1)

```

0000 0D 0A 0D 0A 0A 0A 0A 0A 50 72 69 6E 74 20 42 61      ↳>BarcodePrint Ba
0001 72 20 43 6F 64 65 73 20 77 69 74 68 20 4D 54 50      r Codes with MTP
0002 4C 20 63 6F 6D 6D 61 6E 64 73 0D 0A 28 42 61 72      L commands ↳[Bar
0003 63 6F 64 65 20 4D 6F 64 65 20 4E 61 74 69 76 65      code Mode Native
0004 29 20 0D 0A 0A 0A 43 6F 64 65 20 32 2F 35 20 4D      ) ↳>Barcode 2/5 M
0005 61 74 72 69 78 20 0D 0A 1B 5B 3F 31 31 7E 1A 22      atrix ↳-[?11~-
0006 41 33 3B 31 31 19 14 3A 31 32 33 3A 14 1B 5B          A3:111!¶:123:¶-[?
0007 3F 31 30 7E 0D 0A 0A 0A 43 6F 64 65 20 32 2F 35      ?10~) ↳>Barcode 2/5
0008 20 49 6E 64 75 73 74 72 69 61 6C 20 0D 0A 1B 5B      Industrial ↳-[?
0009 3F 31 31 7E 1A 22 42 33 3B 31 31 19 14 3A 31      ?11~"B3;111!¶:1
000A 32 33 3B 14 1B 5B 3F 31 30 7E 0D 0A 0A 0A 43 6F      23;¶-[?10~) ↳>Barcode
000B 64 65 20 32 2F 35 20 49 6E 74 65 72 6C 65 61 76      de 2/5 Interleav
000C 65 64 20 0D 0A 1B 5B 3F 31 31 7E 1A 22 43 33 3B      ed ↳-[?11~"C3;
000D 31 31 31 19 14 3A 31 32 33 3B 14 1B 5B 3F 31 30      111!¶:123:¶-[?10
000E 7E 0D 0A 0A 43 6F 64 65 20 31 31 20 0D 0A 1B 5B      ~) ↳>Barcode 11 ↳-[?
000F 3F 31 31 7E 1A 22 44 33 3B 31 31 19 14 3A 31      ?11~"D3;111!¶:1

0010 32 33 3A 14 1B 5B 3F 31 30 7E 0D 0A 0A 42 43 44      23:¶-[?10~) ↳>BCD
0011 20 6D 61 74 72 69 78 20 0D 0A 1B 5B 3F 31 31 7E      matrix ↳-[?11~
0012 1A 22 45 33 3B 31 31 19 14 3A 31 32 33 3A 14      +"E3;111!¶:123:¶-[?
0013 1B 5B 3F 31 30 7E 0D 0A 0A 43 6F 64 65 20 33 39      ?10~) ↳>Barcode 39
0014 0D 0A 1B 5B 3F 31 31 7E 1A 22 46 33 3B 31 31 31      ↳-[?11~"F3;111
0015 19 14 2A 31 32 33 2A 14 1B 5B 3F 31 30 7E 0D 0A      !¶*123*¶-[?10~) ↳
0016 0A 0D 0A 43 4F 44 41 42 41 52 20 0D 0A 1B 5B 3F      ↳>CDABAR ↳-[?1
0017 31 31 7E 1A 22 47 33 3B 31 31 31 19 14 2A 31 32      11~"G3;111!¶*12
0018 33 2A 14 1B 5B 3F 31 30 7E 0D 0A 0A 45 41 4E 20      3*¶-[?10~) ↳>EAN
0019 38 20 77 69 74 68 20 48 52 49 20 0D 0A 1B 5B 3F      8 with HRI ↳-[?1
001A 31 31 7E 1A 22 48 33 3B 31 31 31 19 14 3A 30 31      11~"H3;111!¶:01
001B 32 33 3A 34 35 36 37 3A 14 1B 5B 3F 31 30 7E 0D      23:4567:¶-[?10~) ↳
001C 0A 0A 45 41 4E 20 38 20 77 69 74 68 6F 75 74 20      EAN 8 without
001D 48 52 49 20 0D 0A 1B 5B 3F 31 31 7E 1A 20 49 33      HRI ↳-[?11~"I3
001E 3B 31 31 31 19 14 3A 30 31 32 33 3A 34 35 36 37      ;111!¶:0123:4567
001F 3A 14 1B 5B 3F 31 30 7E 0D 0A 0A 45 41 4E 20 31      :¶-[?10~) ↳>EAN 1

0020 33 20 77 69 74 68 20 48 52 49 20 0D 0A 1B 5B 3F      3 with HRI ↳-[?1
0021 31 31 7E 1A 22 4B 33 3B 31 31 19 14 3A 30 31      11~"K3;111!¶:01
0022 32 33 34 35 36 3A 37 38 39 30 31 32 3A 14 1B 5B      23456:789012:¶-[?
0023 3F 31 30 7E 0D 0A 0A 45 41 4E 20 38 20 77 69 74      ?10~) ↳>EAN 8 wit
0024 68 6F 75 74 20 48 52 49 20 0D 0A 1B 5B 3F 31 31      hout HRI ↳-[?11
0025 7E 1A 20 4C 33 3B 31 31 31 19 14 3A 30 31 32 33      ~"L3;111!¶:0123
0026 34 35 36 3A 37 38 39 30 31 32 3A 14 1B 5B 3F 31      456:789012:¶-[?1
0027 30 7E 0D 0A 0A 43 6F 64 65 20 4D 53 49 2F 6D 6F      0~) ↳>Barcode MSI/mo
0028 64 69 66 69 65 64 20 50 6C 65 73 73 65 79 20 0D      dified Plessey ↳
0029 0A 1B 5B 3F 31 31 7E 1A 22 4D 33 3B 31 31 31 19      =[?11~"M3;111!
002A 14 3A 30 31 32 33 3B 14 1B 5B 3F 31 30 7E 0D 0A      ¶:0123;¶-[?10~) ↳
002B 0A 43 6F 64 65 20 55 50 43 41 20 77 69 74 68 20      ↳>Code UPCA with
002C 48 52 49 20 0D 0A 1B 5B 3F 31 31 7E 1A 22 4E 33      HRI ↳-[?11~"N3
002D 3B 31 31 31 19 14 3A 30 31 32 33 34 35 3A 36 37      ;111!¶:012345:67
002E 38 39 30 31 3A 14 1B 5B 3F 31 30 7E 0D 0A 0A 43      8901:¶-[?10~) ↳>C
002F 6F 64 65 20 55 50 43 41 20 77 69 74 68 6F 75 74      ode UPCA without

0030 20 48 52 49 20 0D 0A 1B 5B 3F 31 31 7E 1A 20 4F      HRI ↳-[?11~"O
0031 33 2B 31 31 31 19 14 3A 30 31 32 33 34 35 3A 36      3;111!¶:012345:6
0032 37 38 39 30 31 3A 14 1B 5B 3F 31 30 7E 0D 0A 0A      78901:¶-[?10~) ↳
0033 43 6F 64 65 20 55 50 43 45 20 77 69 74 68 20 48      Code UPCE with H
0034 52 49 20 0D 0A 1B 5B 3F 31 31 7E 1A 22 50 33 3B      RI ↳-[?11~"P3;
0035 31 31 31 19 14 3A 30 31 32 33 34 35 36 37 3A 14      111!¶:01234567:¶-[?
0036 1B 5B 3F 31 30 7E 0D 0A 0A 43 6F 64 65 20 55 50      ?10~) ↳>Barcode UP
0037 43 45 20 77 69 74 68 6F 75 74 20 48 52 49 20 0D      CE without HRI ↳
0038 0A 1B 5B 3F 31 31 7E 1A 20 51 33 3B 31 31 19      =[?11~"Q3;111!
0039 14 3A 30 31 32 33 34 35 36 37 3A 14 1B 5B 3F 31      ¶:01234567:¶-[?1
003A 30 7E 0D 0A 0A 43 6F 64 65 20 31 32 38 20 0D 0A      0~) ↳>Barcode 128 ↳
003B 1B 5B 3F 31 31 7E 1A 22 53 33 3B 31 31 19 14      =[?11~"S3;111!¶-[?
003C 41 42 43 44 30 31 32 33 14 1B 5B 3F 31 30 7E 0D      ABCD0123:¶-[?10~) ↳
003D 0A 0A 55 53 20 50 6F 73 74 6E 65 74 0D 0A 1B 5B      ↳>US Postnet ↳-[?
003E 3F 31 31 7E 1B 5B 31 20 70 31 32 33 34 35 36 37      ?11~"1 p1234567
003F 0D 1B 5B 3F 31 30 7E 0D 0A 0A 55 53 20 50 6F 73      :¶-[?10~) ↳>US Pos

0040 74 6E 65 74 0D 0A 1B 5B 3F 31 31 7E 1B 5B 31 20      tnet) ↳-[?11~"1
0041 6B 31 32 33 34 35 36 37 38 39 30 31 32 33 34 35      k123456789012345
0042 36 37 38 39 30 31 32 33 34 35 36 37 38 39 30 31      6789012345678901
0043 0D 1B 5B 3F 31 30 7E 0D 0A 0A 0A 0A 0A 0A 0A 0C      :¶-[?10~) ↳>Barcode

```

Figure 83. Hex Dump of example on figures 81, 82

Bar Codes handled in SEIKOSHA Commands (Alt. 2 Bar Code Mode)

The S809 partially integrates in the firmware a sub-set handling of the SEIKOSHA BP-9000 Bar Codes specific commands.

The complete and detailed information for these can be found in specific SEIKOSHA BP-9000 programmer manual available on web.

#	Function	Bar Code Commands
1.	Bar code type	DC4 DC4 T n
2.	Element width	DC4 DC4 E n1 n2
3.	Bar code height	DC4 DC4 H n
4.	Setting HRI on and off	DC4 DC4 I n
5.	HRI font	DC4 DC4 F n
6.	Check character	DC4 DC4 C n
7.	Starting the bar code data sequence	ESC SI
8.	Ending the bar code data seqence	ESC SO
9.	Bar code data sequence	DC4 DC4 B n d1 d2 ... dk
10.	Printing density	DC4 DC4 D n
11.	Guard bar expansion	DC4 DC4 G n
12.	Start and stop characters	DC4 DC4 N n1 n2
13.	Bar code rotational angle	DC4 DC4 R n
14.	Disabling HRI of the start and stop characters	DC4 DC4 S n
15.	Value input mode	DC4 DC4 V n
16.	Initializing the bar code mode	DC4 DC4 @

Bar Code Type (n)

0	Industrial 2 of 5	5	Code39	10	UPC-A
1	Interleaved 2 of 5	6	Code93	11	UPC-E
2	Matrix 2 of 5	7	Code128	12	Postnet
3	Codabar	8	EAN-8		
4	Code11	9	EAN-13		

SEIKOSHA Commands Bar Codes Examples

Print Bar Codes with SEIKOSHA commands
(Barcode Mode Alt.2)

Industrial 2of5



1 2 3

Interleaved 2of5



0 1 2 3

Matrix 2of5



1 2 3

Codabar



a123a

Code 11



▲ 1 2 3 ▲

Code 39



* 1 2 3 *

Code 93



1 2 3

Code 128



A B C D 0 1 2 3

EAN 8



0 1 2 3 4 5 6 7

EAN 13



0 1 2 3 4 5 6 7 8 9 0 1 2

UPC A



0 1 2 3 4 5 6 7 8 9 0

UPC E



0 1 2 3 4 5 6

POSTNET



Figure 84. Bar Code Examples with SEIKOSHA Commands (Bar Code Mode Alt. 1)

0000	0D 0A 0A 14 14 40 50 72 69 6E 74 20 42 61 72 20	Print Bar
0001	43 6F 64 65 73 20 77 69 74 68 20 53 45 49 4B 4F	Codes with SEIKO
0002	53 48 41 20 63 6F 6D 6D 61 6E 64 73 0D 0A 28 42	SHA commands
0003	61 72 63 6F 64 65 20 4D 6F 64 65 20 41 6C 74 2E	arcode Mode Alt.
0004	32 29 20 0D 0A 0A 0A 49 6E 64 75 73 74 72 69 61	2) Industrial
0005	6C 20 32 6F 66 35 20 0D 0A 14 14 54 00 14 14 48	1 2of5
0006	06 14 14 49 01 1B 0F 31 32 33 1B 0E 0D 0A 0A 49	*123-#123I
0007	6E 74 65 72 6C 65 61 76 65 64 20 32 6F 66 35 20	Interleaved 2of5
0008	20 0D 0A 14 14 54 01 14 14 48 06 14 14 49 01 1B	123-#123Matrix
0009	0F 31 32 33 1B 0E 0D 0A 0A 4D 61 74 72 69 78 20	2of5
000A	32 6F 66 35 20 20 0D 0A 14 14 54 02 14 14 48 06	*123-#123Co
000B	14 14 49 01 1B 0F 31 32 33 1B 0E 0A 0A 43 6F	dabar
000C	64 61 62 61 72 20 20 0D 0A 14 14 54 03 14 14 48	*123-a123a-#123
000D	06 14 14 49 01 1B 0F 61 31 32 33 61 1B 0E 0A 0A	Code 11
000E	0A 43 6F 64 65 20 31 31 20 20 0D 0A 14 14 54 04	123-#123-#123
000F	14 14 48 06 14 14 49 01 1B 0F 31 32 33 1B 0E 0A	
0010	0A 0A 43 6F 64 65 20 33 39 20 20 0D 0A 14 14 54	Code 39
0011	05 14 14 48 06 14 14 49 01 1B 0F 2A 31 32 33 2A	*123-#123*
0012	1B 0E 0D 0A 0A 43 6F 64 65 20 39 33 20 20 0D 0A	Code 93
0013	14 14 54 06 14 14 48 06 14 14 49 01 1B 0F 31 32	123-#123-#12
0014	33 1B 0E 0D 0A 0A 43 6F 64 65 20 31 32 38 20 20	Code 128
0015	0D 0A 14 14 54 07 14 14 48 06 14 14 49 01 1B 0F	123-#123-#123EAN
0016	41 42 43 44 30 31 32 33 1B 0E 0D 0A 0A 45 41 4E	ABCD0123-#123EAN
0017	20 38 20 20 0D 0A 14 14 54 08 14 14 48 06 14 14	8
0018	49 01 1B 0F 30 31 32 33 34 35 36 37 1B 0E 0D 0A	123-#123-#123
0019	0A 45 41 4E 20 31 33 20 20 0D 0A 14 14 54 09 14	EAN 13
001A	14 48 06 14 14 49 01 1B 0F 30 31 32 33 34 35 36	123-#123-#123456
001B	37 38 39 30 31 32 1B 0E 0D 0A 0A 55 50 43 20 41	789012-#123UPC A
001C	20 20 0D 0A 14 14 54 0A 14 14 48 06 14 14 49 01	123-#123-#123
001D	1B 0F 30 31 32 33 34 35 36 37 38 39 30 31 1B 0E	-#012345678901-#
001E	0D 0A 0A 55 50 43 20 45 20 20 0D 0A 14 14 54 0B	123UPC E
001F	14 14 48 06 14 14 49 01 1B 0F 30 31 32 33 34 35	123-#123-#012345
0020	36 37 1B 0E 0D 0A 0A 50 4F 53 54 4E 45 54 20 20	67-#123POSTNET
0021	0D 0A 14 14 54 0C 1B 0F 30 31 32 33 34 35 36 37	123-#123-#01234567
0022	38 39 1B 0E 0D 0A 0A 0C	89-#123-#

Figure 85. Hex Dump of example on figure 84

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Customer Support

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:

Press the ON LINE key to take the printer OFF LINE		
Press the PROGRAM key	PRINT OUT? NO	Is displayed
Press the → key	PRINT OUT? YES	The PROGRAM SETUP PRINTOUT is printed
Press the ↓ key until	PRINT STATS? NO	Is displayed
Press the → key	PRINT OUT? YES	The USAGE STATISTICS DATA PRINTOUT is printed
Press the ↓ key until	CONFIG MENU NO	Is displayed
Press the → key to display	CONFIG MENU YES	
Press the ↓ key	PRINT OUT? NO	Is displayed
Press the → key	PRINT OUT? YES	The CONFIGURATION SETUP PRINTOUT is printed
Press the PROGRAM key		
Press the TEAR key and tear off the printout at the perforation		

- 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 these samples may be required)

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