

## PRINTER AND PAPER SPECIFICATIONS

This appendix gives the physical, functional, and performance specifications for the printer.

It also gives detailed paper specifications.

### PHYSICAL SPECIFICATIONS

<b>Dimensions</b>	80 columns	136 columns
Height:	120 mm (4.72 in)	120mm (4.72 in)
Width:	415mm (16.3 in)	570 mm (22.5 in)
Depth:	330 mm (13 in)	330 mm (13 in)
<b>Weight:</b>	Approximately 7.3 kg (16 lbs)	9.7 kg (21.4 lbs)
<b>AC power requirements</b>		
Model:	M33331A/M33333A	
	100 to 120 VAC $\pm$ 10%; 50/60 Hz	
Model:	M33331B/M33333B	
	220 to 240 VAC $-10\%$ , $+6\%$ ; 50/60 Hz	
<b>Power consumption</b>		
Model:	M33331A/M33333A	
	Average 140 VA	Maximum 255 VA
Model:	M33331B/M33333B	
	Average 150 VA	Maximum 255 VA
<b>Heat generation</b>	Average 251.2 KJ/h	
<b>Interface</b>	Centronics parallel Centronics parallel and RS-232C serial Centronics parallel and USB and LAN	
<b>Data buffer size</b>	0, 256, 2K, 8K, 24K, 32K, 96K or 128K bytes	
<b>Download buffer</b>	Maximum 128K bytes (128K minus data buffer size)	
<b>Operating environment</b>	5 to 38°C (41 to 100°F) 30% to 80% RH (no condensation) Wetbulb temperature, less than 29°C (84°F)	
<b>Storage environment</b>	-15 to 60°C (-4 to 140°F) 10% to 95% RH (no condensation)	
<b>Acoustic noise</b>	Average 49 dBA when printing in letter quality ISO 7779 (Bystander Position Front)	

**FUNCTIONAL SPECIFICATIONS**

<b>Print method</b>	Impact dot matrix with a 0.2 mm, 24-wire head	
<b>Print direction</b>	Bidirectional logic-seeking or unidirectional seeking	
<b>Character cell</b>	Horizontal x vertical	
	Letter (10 cpi):	36 x 24 dots
	Letter (12 cpi):	30 x 24 dots
	Report:	18 x 24 dots
	Draft:	12 x 24 dots
	High-speed draft:	9 x 24 dots
<b>Paper handling</b>	Standard:	Friction-feed platen (cut sheets) Push tractors (rear feed of continuous forms) Paper loading by LOAD button Advancing perforations to tear-off edge by TEAR OFF button Parking continuous forms when using cut sheets
<b>Paper type</b>	1-to 5-part side-glued or paper-stapled fanfolded continuous forms or label sheets with sprocket holes 1-to 5-part top-glued cut sheets and envelopes	
<b>Paper size</b>		
		80 columns      136 columns
Continuous	Width:	102–267 mm      102–420mm (4–10.5 in)      (4–16.5 in)
	Length:	102 mm (4 in)      Same as left or greater
Cut sheets	Width:	102–267 mm      102–420mm (4–10.5 in)      (4–16.5 in)
	Length:	76–364 mm      76–420 mm (3–14.3 in)      (3–16.5 in)
<b>Paper thickness</b>	Up to 0.35 mm (0.014 inch)	

**Paper length**

By software	Programmable in one line or inch increments in all emulations
By control panel	Depends upon emulations. Default is 11 inches for all emulations.
DPL24C+/XL24E:	3, 3.5, 4, 5, 5.5, 6, 7, 8, 8.5, 11, 11.6, 12, 14, or 18 inches
ESC/P2:	4, 4.5, 5, 5.5, ..., 11, 11.5, ..., 22 inches

**Number of copies**

Up to 5, including the original

**Command sets (emulations)**

Resident	Fujitsu DPL24C PLUS IBM Proprinter XL24E Epson ESC/P2
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**Character sets**

DPL24C+/XL24E:	<ul style="list-style-type: none"> <li>• IBM PC character sets 1 and 2</li> <li>• IBM PS/2 character sets (code pages 437, 850, 852, 855, 860, 863, 865, 866, and DHN)</li> <li>• IBM 437 and 851</li> <li>• ISO 8859-1 and ECMA 94</li> <li>• Total of 59 national character sets</li> <li>• Fujitsu character sets (691 characters)</li> </ul>
ESC/P2:	<ul style="list-style-type: none"> <li>• Italic character set</li> <li>• Graphics character sets 1 and 2</li> <li>• IBM PS/2 character sets (code pages 437, 850, 852, 855, 860, 863, 865, 866, and DHN)</li> <li>• IBM 437 and 851</li> <li>• ISO 8859-1 and ECMA 94</li> <li>• Total of 63 national character sets</li> </ul>

**Fonts**

Resident	Eighteen fonts available
Bit map:	Courier 10, Pica 10, OCR-B 10, OCR-A 10, Prestige Elite 12, Boldface PS, Correspondence, Compressed, Draft, and High-speed Draft
Outline:	Courier, Timeless, and Nimbus Sans ®; each in normal, bold, and italic styles
Downloaded	Available from independent vendors

**Line spacing**

1, 2, 3, 4, 5, 6, 7, or 8 lines per inch.  
 Programmable in 1/360 inch or various increments for image graphics. (ESC/P2)

**Character pitch**

2.5, 3, 5, 6, 10, 12, 15, 17.1, 18, or 20 cpi, or proportional spacing.  
 Programmable in 1/360 inch or various increments for image graphics.

**Characters per line**

	80 columns	136 columns
10 cpi:	80 cpl	136 cpl
12 cpi:	96 cpl	163 cpl
15 cpi:	120 cpl	204 cpl
17.1 cpi:	136.8 cpl	231 cpl
18 cpi:	144 cpl	244 cpl
20 cpi:	160 cppl	272 cpl
	cpi: characters per inch	
	cpl: characters per line	

**PERFORMANCE SPECIFICATIONS**

**Print speed**

	10 cpi	12 cpi
Letter:	113 cps	135 cps
Report:	225 cps	270 cps
Correspondence:	225 cps	270cps
Draft:	360 cps	432 cps
High-speed draft:	400 cps	480 cps (for 80-column printer)
	448 cps	537cps (for 136-colmunprinter)
	cpi: characters per inch	
	cps: characters per second	

**Line feed speed** 80 ms per line at 6 lines per inch

**Form feed speed** 5.6 inches per second

**Ribbon life**  
Up to 5.0 million characters

**Certification**

Safety:

Model	Regulation	Country
M33331A/M33333A	UL 60950 (for 100 to 120 VAC)	United States
	CSA-C22.2 No.60950 (for 100 to 120 VAC)	Canada
M33331B/M33333B	TÜV EN60950 (for 220 to 240 VAC)	Germany Europe

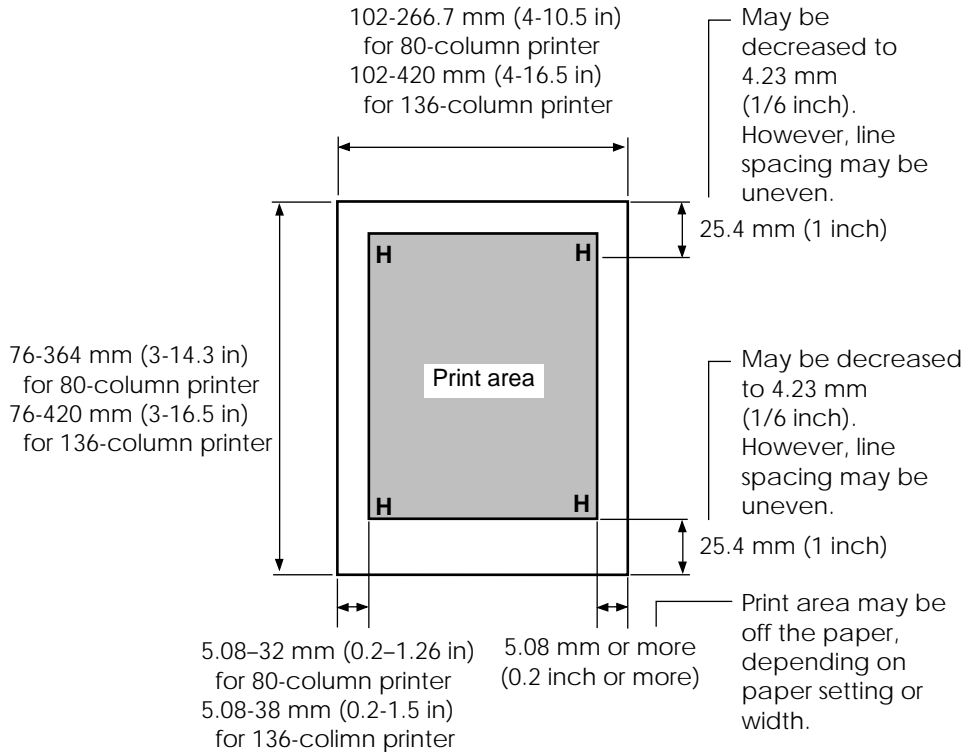
EMI regulation:

Model	Regulation	Country
M33331A/M33333A	FCC Part 15B class B	United States
	ICES-003 class B	Canada
M33331B/M33333B	EN 55022	class B Europe
	AS/NZS 3548 class B	Australia and New Zealand
M33331A/M33333A	CNS 13438 class B	Asia
M33331B/M33333B	CNS 13438 class B	Taiwan

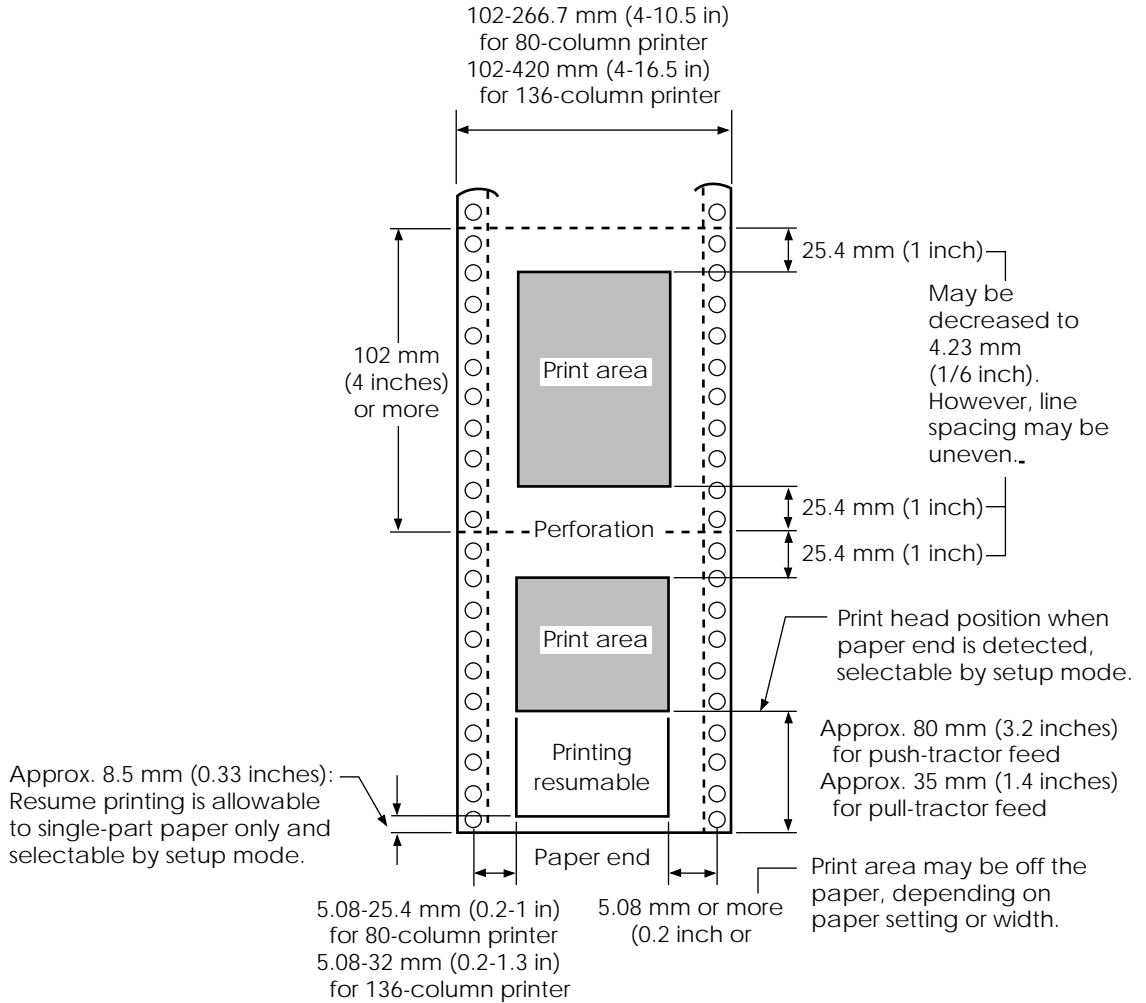
PAPER SPECIFICATIONS

Print Area

This section illustrates the recommended print area for single sheets and continuous forms.



**Print area for single sheets**



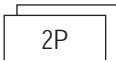
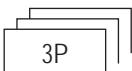
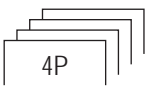
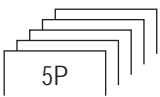
**Print area for continuous forms**

Specifications

### Paper Thickness

Paper thickness is given by the weight of the paper in either grams per square meter (g/m<sup>2</sup>) or in pounds per bond (lbs/bond). The following table shows the allowable paper thickness for one-part paper or for each sheet of multipart paper. The total thickness must not exceed 0.35 mm (0.014 inch).







The weight of carbonless or carbon-backed paper may vary, depending upon the paper manufacturer. When using paper of borderline thickness, test the paper before running a job.

Type of Paper	Number of Parts	Thickness
One-part	Single	52-81 g/m <sup>2</sup> (45-70 kg or 14-22 lb)
Carbonless  2P   3P   4P   5P	Top	40-64 g/m <sup>2</sup> (34-55 kg or 11-17 lb)
	Bottom	40-81 g/m <sup>2</sup> (34-70 kg or 11-22 lb)
	Top	40-64 g/m <sup>2</sup> (34-55 kg or 11-17 lb)
	Middle	40-64 g/m <sup>2</sup> (34-55 kg or 11-17 lb)
	Bottom	40-81 g/m <sup>2</sup> (34-70 kg or 11-22 lb)
	Top	40-64 g/m <sup>2</sup> (34-55 kg or 11-17 lb)
	Middle	40-64 g/m <sup>2</sup> (34-55 kg or 11-17 lb)
	Middle	40-64 g/m <sup>2</sup> (34-55 kg or 11-17 lb)
	Bottom	40-81 g/m <sup>2</sup> (34-70 kg or 11-22 lb)
	Top	40-52 g/m <sup>2</sup> (34-45 kg or 11-17 lb)
	Middle	40-52 g/m <sup>2</sup> (34-45 kg or 11-17 lb)
	Middle	40-52 g/m <sup>2</sup> (34-45 kg or 11-17 lb)
Middle	40-52 g/m <sup>2</sup> (34-45 kg or 11-17 lb)	
Bottom	40-64 g/m <sup>2</sup> (34-55 kg or 11-17 lb)	

kg: Weight in kilograms of 1000 sheets of 788 x 1091 mm paper (1.16 g/m<sup>2</sup>)

lb: Weight in pounds of 500 sheets of 17 x 22 inch paper (3.76 g/m<sup>2</sup>)



Type of Paper	Number of Parts	Thickness
Carbon-backed	<i>Do not use in high humidity environments.</i>	
 2P	Top	40-64 g/m <sup>2</sup> (34-55 kg or 11-17 lb)
	Bottom	40-81 g/m <sup>2</sup> (34-70 kg or 11-22 lb)
 3P	Top	40-64 g/m <sup>2</sup> (34-55 kg or 11-17 lb)
	Middle	40-64 g/m <sup>2</sup> (34-55 kg or 11-17 lb)
	Bottom	40-81 g/m <sup>2</sup> (34-70 kg or 11-22 lb)
 4P	Top	40-64 g/m <sup>2</sup> (34-55 kg or 11-17 lb)
	Middle	40-64 g/m <sup>2</sup> (34-55 kg or 11-17 lb)
	Middle	40-64 g/m <sup>2</sup> (34-55 kg or 11-17 lb)
	Bottom	40-81 g/m <sup>2</sup> (34-70 kg or 11-22 lb)
 5P	Top	40-52 g/m <sup>2</sup> (34-45 kg or 11-14 lb)
	Middle	40-52 g/m <sup>2</sup> (34-45 kg or 11-14 lb)
	Middle	40-52 g/m <sup>2</sup> (34-45 kg or 11-14 lb)
	Middle	40-52 g/m <sup>2</sup> (34-45 kg or 11-14 lb)
	Bottom	40-64 g/m <sup>2</sup> (34-55 kg or 11-17 lb)
Carbon-interleaved	<i>Avoid using carbon-interleaved single sheets.</i>	
 2P	Top	35-64 g/m <sup>2</sup> (30-55 kg or 9-17 lb)
	Carbon	Counted as one sheet
	Bottom	35-81 g/m <sup>2</sup> (30-70 kg or 9-22 lb)
 3P	Top	35-52 g/m <sup>2</sup> (30-45 kg or 9-14 lb)
	Carbon	Counted as one sheet
	Middle	35-52 g/m <sup>2</sup> (30-45 kg or 9-14 lb)
	Carbon	Counted as one sheet
	Bottom	35-64 g/m <sup>2</sup> (30-55 kg or 9-17 lb)

kg: Weight in kilograms of 1000 sheets of 788 x 1091 mm paper  
(1.16 g/m<sup>2</sup>)

lb: Weight in pounds of 500 sheets of 17 x 22 inch paper (3.76 g/m<sup>2</sup>)



# C

## COMMAND SETS

This appendix describes printer commands and their parameters.

This printer has three resident command sets:

- Fujitsu DPL24C PLUS (native command set for Fujitsu DL series printers)
- IBM Proprinter XL24E
- Epson ESC/P2

Select the same emulation on the printer and in your software. If your software emulations include DPL24C PLUS, select DPL24C PLUS for optimum performance.



Function	Command
Double-height characters on/off (on: $n = 1$ , off: $n = 0$ ) This command does not adjust the line spacing.	ESC V ( $n$ )
Multiwidth and height printing $n = 0$ : Not adjusted 1: Character pitch multiplied 2: Line spacing multiplied 3: Character pitch and line spacing multiplied  $h_1$ : Tens digit of horizontal multiple $h_2$ : Units digit of horizontal multiple $v_1$ : Tens digit of vertical multiple $v_2$ : Units digit of vertical multiple ( $0 \leq h_1, h_2$ or $v_1, v_2 \leq 11$ )	ESC u ( $n$ ) ( $h_1$ ) ( $h_2$ ) ( $v_1$ ) ( $v_2$ )
Condensed characters on	SI or ESC SI
Condensed characters off	DC2
Subscript or superscript printing on (subscript: $n=1$ , superscript: $n=0$ )	ESC S ( $n$ )
Subscript and superscript printing off	ESC T
Select underline type $n = 0$ : Single line 1: Bold single line 2: Extremely bold single line 3: Double line 4: Bold double line 5: Extremely bold double line	ESC e U ( $n$ )
Underline on/off (on: $n=1$ , off: $n=0$ )	ESC - ( $n$ )
Overline on/off (on: $n=1$ , off: $n=0$ )	ESC e o ( $n$ )



Function	Command
Set character offset to $n/120$ inch Cancelled by CR or ESC x. ( $0 \leq n \leq 63$ ) ( $64 \leq n \leq 127$ )	ESC DC1 ( $n$ )
Set character pitch to $n/360$ inch ( $0 \leq n_1 n_2 n_3 \leq 999$ ) $n_1$ , $n_2$ , and $n_3$ are the hundreds, tens, and units digits.	ESC e H ( $n_1$ ) ( $n_2$ ) ( $n_3$ )
<b>Vertical Control</b>	
Line feed	LF
Reverse line feed	ESC LF
Form feed	FF
Advance paper $n/180$ inch ( $0 \leq n \leq 255$ )	ESC J ( $n$ )
Reverse paper $n/180$ inch ( $0 \leq n \leq 255$ )	ESC j ( $n$ )
Advance paper $n/360$ inch ( $0 \leq n_1 n_2 n_3 \leq 999$ ) $n_1$ , $n_2$ , and $n_3$ are the hundreds, tens, and units digits.	ESC e J ( $n_1$ ) ( $n_2$ ) ( $n_3$ )
Reverse paper $n/360$ inch ( $0 \leq n_1 n_2 n_3 \leq 999$ ) $n_1$ , $n_2$ , and $n_3$ are the hundreds, tens, and units digits.	ESC e j ( $n_1$ ) ( $n_2$ ) ( $n_3$ )
Set line spacing to $1/8$ inch (8 lpi)	ESC 0
Set line spacing to $n/180$ inch ( $0 \leq n \leq 255$ )	ESC 3 ( $n$ )
Set line spacing to $7/60$ inch	ESC 1
Set line spacing to $n/60$ inch ( $0 \leq n \leq 127$ )	ESC A ( $n$ )
Set line spacing to $1/6$ inch (6 lpi) or to the value set with the ESC A command. The preset line spacing command is ESC A ( $n$ ).	ESC 2
Set line spacing to $n/360$ inch ( $0 \leq n_1 n_2 n_3 \leq 999$ ) $n_1$ , $n_2$ , and $n_3$ are the hundreds, tens, and units digits.	ESC e V ( $n_1$ ) ( $n_2$ ) ( $n_3$ )
Set line spacing to $n/360$ inch ( $1 \leq n \leq 255$ )	FS 3 ( $n$ )

Function	Command
<p><b>Tabulation</b></p> <p>Horizontal tab execution</p> <p>Set horizontal tabs            The values of <math>n_1</math> to <math>n_k</math> in this command are the ASCII values of the print columns (at the current character width) at which tabs are to be set.  <math>(1 \leq n \leq 255) (1 \leq k \leq 255)</math></p> <p>Move to print column <math>n</math> (<math>1 \leq n \leq 255</math>)</p> <p>Move dot column <math>n/360</math> inch  <math>(n = n_1 + n_2 \times 256)</math>            The value below is for 136-column printers.  <math>(0 \leq n_1 \leq 255) (0 \leq n_2 \leq 19)</math>  <math>(0 \leq n_2 \times 256 + n_1 \leq 4895)</math></p> <p>Horizontal relative move by <math>n/360</math> inch  <math>(-999 \leq n_1 \ n_2 \ n_3 \leq +999)</math>  <math>n_1, n_2,</math> and <math>n_3</math> are the hundreds, tens, and units digits of the distance. <math>s</math> is a plus or minus (+ or -) sign.</p> <p>Vertical tab execution</p> <p>Set vertical tabs            The values of <math>n_1</math> to <math>n_k</math> in this command are the ASCII values of the lines (at the current line spacing) at which tabs are to be set.  <math>(1 \leq n \leq 255) (1 \leq k \leq 64)</math></p> <p>Move to line <math>n</math> (<math>1 \leq n \leq 255</math>)</p>	<p>HT</p> <p>ESC D (<math>n_1</math>) ... (<math>n_k</math>)</p> <p>NUL</p> <p>ESC HT (<math>n</math>)</p> <p>ESC \$ (<math>n_1</math>) (<math>n_2</math>)</p> <p>ESC e R (<math>s</math>)  <math>(n_1) (n_2) (n_3)</math></p> <p>VT</p> <p>ESC B (<math>n_1</math>) ... (<math>n_k</math>)</p> <p>NUL</p> <p>ESC VT (<math>n</math>)</p>
<p><b>Page Formatting</b></p> <p>Set right margin (<math>0 \leq n \leq 255</math>)</p> <p>Set left margin (<math>0 \leq n \leq 255</math>)</p> <p>Set perforation skip by <math>n</math> lines  <math>(1 \leq n \leq 127)</math></p> <p>Perforation skip off</p> <p>Set page length to <math>n</math> lines  <math>(1 \leq n \leq 127)</math></p>	<p>ESC Q (<math>n</math>)</p> <p>ESC l (<math>n</math>)</p> <p>ESC N (<math>n</math>)</p> <p>ESC O</p> <p>ESC C (<math>n</math>) or</p> <p>ESC e c (<math>n</math>) or</p> <p>ESC FF (<math>n</math>)</p>



Function	Command
<p>Set page length to <math>n</math> inches (<math>1 \leq n \leq 22</math>)</p> <p>Set page length to <math>n/360</math> inch (<math>n = n_1 \times 256 + n_2</math>) (<math>0 \leq n_1, n_2 \leq 255</math>) (<math>1 \leq n_1 \times 256 + n_2 \leq 7920</math>)</p>	<p>ESC C NUL (<math>n</math>) or ESC e C NUL (<math>n</math>) or ESC FF NUL (<math>n</math>) ESC e f (<math>n_1</math>) (<math>n_2</math>)</p>
<p><b>Character Set Control</b></p> <p>Select character set 1 Appendix E gives the character sets</p> <p>Select character set 2 Appendix E gives the character sets.</p> <p>Select international character set <math>n = 0</math>: USA 1: France 2: Germany 3: United Kingdom 4: Denmark 1/Norway 5: Sweden/Finland 6: Italy 7: Spain 8: Denmark 2</p> <p>Clear print buffer</p> <p>Select printer</p> <p>Deselect printer (ignore input)</p> <p>Force most significant bit to 1</p> <p>Force most significant bit to 0</p> <p>Cancel control over most significant bit</p>	<p>ESC 7</p> <p>ESC 6</p> <p>ESC R (<math>n</math>)</p> <p>CAN</p> <p>DC1</p> <p>DC3</p> <p>ESC &gt;</p> <p>ESC =</p> <p>ESC #</p>

Function	Command																											
<p>Select code table</p> <p><math>n = 0</math>: Code page 437            1: Code page 850            2: Code page 860            3: Code page 863            4: Code page 865            5: ISO 8859-1/ECMA 94</p> <p>Select extended character by character number  <math>(0 \leq n_1 n_2 n_3 \leq 664)</math>  <math>n_1, n_2,</math> and <math>n_3</math> are the hundreds, tens, and units digits.</p>	<p>ESC e C (<math>n</math>)</p> <p>ESC e E  <math>(n_1) (n_2) (n_3)</math></p>																											
<p><b>Word Processing</b></p> <p>Line justification on            Automatically center printing            Reset word processing features</p>	<p>ESC m            ESC c            ESC x</p>																											
<p><b>Font Selection and Downloading</b></p> <p>Select font <math>m</math> with source and style set by <math>n</math></p> <p>•<math>m</math> (bits 0 and 1: Font device selection)</p> <table border="1" data-bbox="526 1038 873 1182"> <thead> <tr> <th>Bit 1</th> <th>Bit 0</th> <th>Selection of font</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>Resident font</td> </tr> <tr> <td>0</td> <td>1</td> <td>Downloaded font</td> </tr> <tr> <td>1</td> <td>0</td> <td>Resident font</td> </tr> </tbody> </table> <p>•<math>m</math> (bits 2 and 3: Print quality specification)</p> <table border="1" data-bbox="526 1281 941 1499"> <thead> <tr> <th>Bit 3</th> <th>Bit 2</th> <th>Print quality</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>Original quality of font</td> </tr> <tr> <td>0</td> <td>1</td> <td>Letter quality (360 dpi)</td> </tr> <tr> <td>1</td> <td>0</td> <td>Correspondence quality (180 dpi)</td> </tr> <tr> <td>1</td> <td>1</td> <td>Draft quality (120 dpi)</td> </tr> </tbody> </table>	Bit 1	Bit 0	Selection of font	0	0	Resident font	0	1	Downloaded font	1	0	Resident font	Bit 3	Bit 2	Print quality	0	0	Original quality of font	0	1	Letter quality (360 dpi)	1	0	Correspondence quality (180 dpi)	1	1	Draft quality (120 dpi)	<p>ESC % (<math>m</math>) (<math>n</math>)</p>
Bit 1	Bit 0	Selection of font																										
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1	1	Draft quality (120 dpi)																										

Function		Command																											
<p>• <i>n</i> (bit 0 to 2: Specification of font number)</p> <p>(1) Resident fonts</p> <table border="1"> <thead> <tr> <th><i>n</i></th> <th><i>m</i> = 0, 0</th> <th><i>m</i> = 1, 0</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Courier 10</td> <td>OCR-B</td> </tr> <tr> <td>1</td> <td>Prestige elite 12</td> <td>OCR-A</td> </tr> <tr> <td>2</td> <td>Draft</td> <td></td> </tr> <tr> <td>3</td> <td>Compressed</td> <td></td> </tr> <tr> <td>4</td> <td>Boldface PS</td> <td></td> </tr> <tr> <td>5</td> <td>Pica 10</td> <td></td> </tr> <tr> <td>6</td> <td>Correspondence</td> <td></td> </tr> <tr> <td>7</td> <td>High-speed draft</td> <td></td> </tr> </tbody> </table> <p>(2) Downloaded fonts</p> <p><i>n</i> = 0: Downloaded font 0  1: Downloaded font 1</p> <p>Select print quality (font attributes) <span style="float: right;">ESC e q (<i>n</i>)</span></p> <p><i>n</i> = 0: Letter (360 x 180 dpi)  1: Correspondence (180 x 180 dpi)  2: Draft (120 x 180 dpi)  3: High-speed Draft (90 x 180 dpi)</p> <p>Select spacing mode (font attributes) <span style="float: right;">ESC e s (<i>n</i>)</span></p> <p><i>n</i> = 0: Fixed pitch font  1: Proportional spacing font</p> <p>Select character pitch (<i>n</i>/360 inch, font attributes) <span style="float: right;">ESC e p (<i>n</i><sub>1</sub>) (<i>n</i><sub>2</sub>)</span></p> <p>(0 ≤ <i>n</i><sub>1</sub> ≤ 255) (1 ≤ <i>n</i><sub>2</sub> ≤ 255)  (<i>n</i> = <i>n</i><sub>1</sub> x 256 + <i>n</i><sub>2</sub>)  Ex. <i>n</i> = 36: 10 pitch  30: 12 pitch  24: 15 pitch  21: 17 pitch</p> <p>Condense/enlarge vertically (font attributes) <span style="float: right;">ESC e A (<i>n</i>)</span></p> <p><i>n</i> = 1: Executed  0: Not executed</p> <p>Select point size (<i>n</i>/1200 inch, font attributes) <span style="float: right;">ESC e v (<i>n</i><sub>1</sub>) (<i>n</i><sub>2</sub>)</span></p> <p>(0 ≤ <i>n</i><sub>1</sub> ≤ 255) (0 ≤ <i>n</i><sub>2</sub> ≤ 255)  (<i>n</i> = <i>n</i><sub>1</sub> x 256 + <i>n</i><sub>2</sub>)  Ex. <i>n</i> = 166: 10 point</p>			<i>n</i>	<i>m</i> = 0, 0	<i>m</i> = 1, 0	0	Courier 10	OCR-B	1	Prestige elite 12	OCR-A	2	Draft		3	Compressed		4	Boldface PS		5	Pica 10		6	Correspondence		7	High-speed draft	
<i>n</i>	<i>m</i> = 0, 0	<i>m</i> = 1, 0																											
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6	Correspondence																												
7	High-speed draft																												

Function		Command
Select character style (font attributes) <i>n</i> = 0: Upright 1: Italic		ESC e i ( <i>n</i> )
Select stroke weight (font attributes) <i>n</i> = 249: -7 (reserved) 251: -5 (reserved) 253: -3 (light) 0: 0 (medium) 3: 3 (bold) 5: 5 (black) 7: 7 (ultrablack)		ESC e w ( <i>n</i> )
Select typeface (font attributes) <i>n</i> = 1: Pica 3: Courier (bitmap) 4: Nimbus Sans ® 5: Timeless 8: Prestige 23: Boldface 130: OCR-A 131: OCR-B 134: Courier (scalable)		ESC e t ( <i>n</i> )
Select font by I.D. (font attributes)		ESC e F ( <i>n</i> )

<i>n</i>	Quality	Spacing	Pitch	Point	Typeface
1	LQ	Fixed	10 cpi	12 pt	Courier (bitmap)
2	LQ	Fixed	12 cpi	10 pt	Prestige
3	LQ	PS	-	12 pt	Boldface
4	LQ	Fixed	10 cpi	12 pt	Pica
9	LQ	Fixed	10 cpi	12 pt	OCR-A
10	LQ	Fixed	10 cpi	12 pt	OCR-B
32	CQ	Fixed	10 cpi	12 pt	Courier (bitmap)
34	DQ	Fixed	12 cpi	11 pt	Gothic
128	LQ	PS	-	10 pt	Timeless
129	LQ	PS	-	10 pt	Timeless Italic
130	LQ	PS	-	10 pt	Timeless Bold
132	LQ	PS	-	10 pt	Nimbus Sans ®
133	LQ	PS	-	10 pt	Nimbus Italic
134	LQ	PS	-	10 pt	Nimbus Bold
140	LQ	Fixed	10 cpi	10 pt	Courier (scalable)
141	LQ	Fixed	10 cpi	10 pt	Courier Bold (scalable)
142	LQ	Fixed	10 cpi	10 pt	Courier Italic (scalable)

Function	Command																									
<p>Copy resident font to download area</p> <p><i>m</i> = 0: Courier 10                      1: Prestige Elite 12                      2: Draft                      3: Compressed                      4: Boldface PS                      5: Pica 10                      6: Correspondence                      7: High-speed Draft</p> <p><i>n</i> = 0: Downloaded font 0                      1: Downloaded font 1</p> <p>Create download font</p> <ul style="list-style-type: none"> <li><i>m</i> (bits 4 and 5: Specifies the quality of characters to be registered)</li> </ul> <table border="1"> <thead> <tr> <th>Bit 5</th> <th>Bit 4</th> <th>Font quality selection</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>1</td> <td>Letter (360 dpi)</td> </tr> <tr> <td>1</td> <td>0</td> <td>Correspondence (180 dpi)</td> </tr> <tr> <td>1</td> <td>1</td> <td>Draft (120 dpi)</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li><i>m</i> (bit 0: Specifies external font number to be registered)</li> </ul> <table border="1"> <thead> <tr> <th>Bit 0</th> <th>Font number selection</th> <th>Remarks</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Downloaded font 0</td> <td>At power on, resident font 0 is automatically downloaded.</td> </tr> <tr> <td>1</td> <td>Downloaded font 1</td> <td>At power on, resident font 1 is automatically downloaded.</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li><i>m</i> (bits 1, 2, 3, 6, 7) Not used (don't care)</li> <li><i>Cs</i> (Download start character, ASCII code)</li> <li><i>Ce</i> (Download end character, ASCII code)</li> </ul> <table border="1"> <tbody> <tr> <td>Decimal</td> <td>0 - <i>Cs</i>, <i>Ce</i> &lt; 255</td> </tr> <tr> <td>Hex</td> <td>00 - <i>Cs</i>, <i>Ce</i> - FF</td> </tr> </tbody> </table> <p>Precaution: <math>Ce \geq Cs</math></p> <ul style="list-style-type: none"> <li><i>data</i> (More than one byte of data containing bit map data)</li> </ul> <p>(Reserved)</p>	Bit 5	Bit 4	Font quality selection	0	1	Letter (360 dpi)	1	0	Correspondence (180 dpi)	1	1	Draft (120 dpi)	Bit 0	Font number selection	Remarks	0	Downloaded font 0	At power on, resident font 0 is automatically downloaded.	1	Downloaded font 1	At power on, resident font 1 is automatically downloaded.	Decimal	0 - <i>Cs</i> , <i>Ce</i> < 255	Hex	00 - <i>Cs</i> , <i>Ce</i> - FF	<p>ESC : NUL (<i>m</i>) (<i>n</i>)</p> <p>ESC &amp; (<i>m</i>) (<i>Cs</i>)                      (<i>Ce</i>) (<i>data</i>)</p> <p>ESC e D (<i>data</i>);</p>
Bit 5	Bit 4	Font quality selection																								
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Decimal	0 - <i>Cs</i> , <i>Ce</i> < 255																									
Hex	00 - <i>Cs</i> , <i>Ce</i> - FF																									

Function	Command
<p><b>Bit Image Graphics</b></p> <p>Graphics type m graphics</p> <p>Graphics type m graphics</p> <p>Single-density graphics</p> <p>Double-density graphics</p> <p>High-speed double-density graphics</p> <p>Quadruple-density graphics</p> <p>360 dot per inch 24-pin graphics</p>	<p>ESC * (<i>m</i>)</p> <p>(<i>n</i><sub>1</sub>) (<i>n</i><sub>2</sub>) (<i>data</i>)</p> <p>ESC e b (<i>m</i>)</p> <p>(<i>n</i><sub>1</sub>) (<i>n</i><sub>2</sub>) (<i>data</i>) or</p> <p>ESC e B (<i>m</i>)</p> <p>(<i>n</i><sub>1</sub>) (<i>n</i><sub>2</sub>) (<i>data</i>)</p> <p>ESC K (<i>n</i><sub>1</sub>) (<i>n</i><sub>2</sub>) (<i>data</i>)</p> <p>ESC L (<i>n</i><sub>1</sub>) (<i>n</i><sub>2</sub>) (<i>data</i>)</p> <p>ESC Y (<i>n</i><sub>1</sub>) (<i>n</i><sub>2</sub>) (<i>data</i>)</p> <p>ESC Z (<i>n</i><sub>1</sub>) (<i>n</i><sub>2</sub>) (<i>data</i>)</p> <p>FS Z (<i>n</i><sub>1</sub>) (<i>n</i><sub>2</sub>) (<i>data</i>)</p>
<p><b>Initialize Printer</b></p> <p>Reset printer</p> <p>Reset printer</p> <p>Initialize printer</p>	<p>ESC @</p> <p>ESC CR P</p> <p>ESC SUB I</p>
<p><b>Bar Code Printing</b></p> <p>Print bar code</p> <p>    b: Total number of parameters</p> <p>    R: (fixed)</p> <p>(To be continued)</p>	<p>ESC DC4 (b) R</p> <p>(<i>c</i>) (<i>w</i>) (<i>h</i>) (<i>a</i>)</p> <p>(<i>ch</i><sub>1</sub>) ... (<i>ch</i><sub><i>n</i></sub>)</p>

Function				Command
c: Type of bar code				
ASCII	Decimal	Hex	Type of bar code	
1	49	31	Codebar (nw-7)	
2	50	32	EAN 13	
3	51	33	EAN 8	
4	52	34	Code 3 to 9	
5	53	35	Industrial 2 of 5	
6	54	36	Interleaved 2 of 5	
7	55	37	Matrix 2 of 5	
A	65	41	UPC type A	
B	66	42	Code 128	
a	97	61	UPC type A with checkdigit printing	
<p>w: Width of narrow bar in 1/1440 inch units</p> <p>h: Height of bar code</p> <p>a: Defines check characters and OCR characters</p> <p><math>ch_1 \dots ch_n</math>: Bar code characters</p> <p><b>NOTE</b>  <b>When EAN13, UPC type A, or UPC type A with checkdigit printing is selected as the type of barcode, printing the barcode from the left (from the first dot) will cause the omission of a flag character that should be printed on the lower left or middle left of it. Therefore, when printing these types of barcode, leave two or more spaces open from the left.</b></p>				

Function	Command
<b>Miscellaneous</b>	
Sound bell	BEL
Enable paper-out sensor	ESC 9
Ignore paper-out sensor	ESC 8
Typewriter mode on/off (on: $n=1$ , off: $n=0$ )	ESC i ( $n$ )
Move print head to home position	ESC <
Unidirectional printing on/off (on: $n=1$ , off: $n=0$ )	ESC U ( $n$ )
Select CR code definition $n = 0$ : CR = CR only 1: CR = CR + LF	ESC e r ( $n$ )
Select LF code definition $n = 0$ : LF = LF only 1: LF = LF + CR	ESC e l ( $n$ )
Enter online setup mode	ESC e ONLINE ( <i>data</i> )
Move print head (unit: 1/180 inch) ( $0 \leq n_1 \leq 255$ ) ( $0 \leq n_2 \leq 255$ )	ESC e h ( $n_1$ ) ( $n_2$ )



### Factory Default Settings

The following table describes the printer commands used to control options of the items that can be selected in printer setup mode. Command parameters are omitted.

Item	Selectable options in setup mode	Command
Emulate	<u>DPL24C+</u> , XL24E, ESC/P2	Controllable in online setup mode
Font	<u>COUR 10</u> , PRSTG 12, COMPRSD, BOLD FCE, PICA 10, CORRESP, COUR-N, COUR-B, COUR-I, TIMLS-N, TIMLS-B, TIMLS-I, N.SAN-N, N.SAN-B, N.SAN-I. OCR-B, OCR-A, DOWNLD 0, DOWNLD 1	ESC e t ESC e F ESC %
Quality	<u>LETTER</u> , REPORT, DRAFT, HI-DRFT	ESC e q
Pitch	2.5, 3, 5, 6, <u>10</u> , 12, 15, 17, 18, 20 CPI or PROP SP	ESC e p ESC e H ESC h ESC US ESC M ESC P ESC p ESC i ESC e s
Line space	1, 2, 3, 4, 5, <u>6</u> , 7, 8, LPI	ESC e V ESC 0 ESC 1 ESC 2 ESC 3 ESC A
Character width	<u>NORMAL</u> , 2 TIMES, 4 TIMES	ESC W SO or ESC SO (DC4) ESC u ESC !
Character height	<u>NORMAL</u> , 2 TIMES, 4 TIMES	ESC V ESC u

Underline: Factory default  
( ): Cancel command

Item	Selectable options in setup mode	Command
Attributes	<u>NONE</u> , ITALICS, CONDNSD, SHADOW, BOLD	ESC 4 (ESC 5) SI or ESC SI (DC2) ESC E (ESC F) ESC G (ESC H) ESC e i ESC !
Page length	3.0, 3.5, 4.0, 5.0, 5.5, 6.0, 7.0, 8.0, 8.5, <u>11.0</u> , 11.6, 12.0, 14.0, 18.0 IN	ESC C NUL ESC e C NUL ESC FF NUL ESC C ESC e C ESC FF
Left end	<u>1</u> , 2, 3, ... , 41 COLM	Controllable in online setup mode
Top margin	<u>1</u> , 2, 3, ... , 10 LINE	Controllable in online setup mode
Language	USA, UK, GERMAN, FRENCH, ITALIAN, SPANISH, SWEDISH, FINNISH, DANISH1, DANISH2, NORWEGN, <u>PAGE437</u> , PAGE850, PAGE860, PAGE863, PAGE865 ISO8859, ECMA94	ESC R ESC e C
	PG852, PG852-T, PG855, PG866, HUNGARY, HUNG-T, SOLV, SOLV-T, POLISH, POLSH-T, MAZOWIA, MAZOW-T, LATIN7, LATIN2, LATN2-T, KAMENIC, KAMEN-T, TURKY, TURKY-T, CYRILIC, IBM437, IBM851, ELOT928, PG-DHN, LATIN-P, ISO-LTN, LITHUA1, LITHUA2, MIK, MACEDON, ABG, ABY, PG-MAC, ELOT927, DEC-GR, GREEK 11, PG862, HBR-OLD, HBR-DEC, ISO-TUK, RUSCII, LATIN-9	Uncontrollable by commands but controllable in online setup mode

Underline: Factory default  
(        ): Cancel command

Item	Selectable options in setup mode	Command
Character set	SET 1, <u>SET2</u>	ESC7 ESC6
Perforation skip	SKIP, <u>NO-SKIP</u>	ESC N (ESC O)
Paper width	8.0 IN, 11.0 IN, 11.4 IN, <u>13.6IN</u> , (8.0 IN is default for 80-column printer, and 13.6 IN is default for 136-column printer)	Controllable in online setup mode
Zero font	<u>NO-SLSH</u> , SLASH	Controllable in online setup mode
DC3	<u>ENABLE</u> , DISABLE	Controllable in online setup mode
CR code	<u>CR-ONLY</u> , CR & LF	ESC e r
LF code	LF-ONLY, <u>LF &amp; CR</u>	ESC e l
Right end wrap	<u>WRAP</u> , OVR-PRT	Controllable in online setup mode
Paper-out	<u>CNTONLY</u> , DETECT, IGNORE	ESC 9 (ESC 8)
Print direction	<u>BI-DIR</u> , UNI-DIR	ESC U

Underline: Factory default  
( ): Cancel command

**IBM PROPRINTER XL24E  
EMULATION**

This section describes the printer commands for the IBM Proprinter XL24E emulation. Asterisks in the "Function" column indicate extended commands that are not supported by the original printer.

Function	Command																														
<b>Print Mode Control</b>																															
Double-strike (bold) printing on	ESC G																														
Double-strike (bold) printing off	ESC H																														
Emphasized (shadow) printing on	ESC E																														
Emphasized (shadow) printing off	ESC F																														
One-line double-width characters on	SO or ESC SO																														
One-line double-width characters off	DC4																														
Double-width characters on/off (on: $n = 1$ , off: $n = 0$ )	ESC W ( $n$ )																														
Double-height/double-width characters $n_1 = 4, n_2 = 0, m_1 = 0, m_2 = 0$ $m_3$ controls character height and line spacing:	ESC [ @ ( $n_1$ ) ( $n_2$ ) ( $m_1$ ) ... ( $m_4$ )																														
<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;"><math>m_3</math></th> <th style="text-align: center;">Height</th> <th style="text-align: center;">Spacing</th> </tr> </thead> <tbody> <tr><td style="text-align: center;">0</td><td style="text-align: center;">Unchanged</td><td style="text-align: center;">Unchanged</td></tr> <tr><td style="text-align: center;">1</td><td style="text-align: center;">Normal</td><td style="text-align: center;">Unchanged</td></tr> <tr><td style="text-align: center;">2</td><td style="text-align: center;">Double</td><td style="text-align: center;">Unchanged</td></tr> <tr><td style="text-align: center;">16</td><td style="text-align: center;">Unchanged</td><td style="text-align: center;">Single</td></tr> <tr><td style="text-align: center;">17</td><td style="text-align: center;">Normal</td><td style="text-align: center;">Single</td></tr> <tr><td style="text-align: center;">18</td><td style="text-align: center;">Double</td><td style="text-align: center;">Single</td></tr> <tr><td style="text-align: center;">32</td><td style="text-align: center;">Unchanged</td><td style="text-align: center;">Double</td></tr> <tr><td style="text-align: center;">33</td><td style="text-align: center;">Normal</td><td style="text-align: center;">Double</td></tr> <tr><td style="text-align: center;">34</td><td style="text-align: center;">Double</td><td style="text-align: center;">Double</td></tr> </tbody> </table>	$m_3$	Height	Spacing	0	Unchanged	Unchanged	1	Normal	Unchanged	2	Double	Unchanged	16	Unchanged	Single	17	Normal	Single	18	Double	Single	32	Unchanged	Double	33	Normal	Double	34	Double	Double	
$m_3$	Height	Spacing																													
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$m_4$ controls character width:																															
<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;"><math>m_4</math></th> <th style="text-align: center;">Width</th> </tr> </thead> <tbody> <tr><td style="text-align: center;">0</td><td style="text-align: center;">Unchanged</td></tr> <tr><td style="text-align: center;">1</td><td style="text-align: center;">Normal</td></tr> <tr><td style="text-align: center;">2</td><td style="text-align: center;">Double</td></tr> </tbody> </table>	$m_4$	Width	0	Unchanged	1	Normal	2	Double																							
$m_4$	Width																														
0	Unchanged																														
1	Normal																														
2	Double																														

Function	Command
Condensed characters on Condensed and elite characters off Subscript or superscript printing on (subscript: $n = 1$ , superscript: $n = 0$ ) Subscript and superscript printing off Underline on/off (on: $n = 1$ , off: $n = 0$ ) Overline on/off (on: $n = 1$ , off: $n = 0$ )	SI or ESC SI DC2 ESC S ( $n$ ) ESC T ESC - ( $n$ ) ESC _ ( $n$ )
<b>Horizontal Control</b> Space Backspace Carriage return Elite characters on Proportionally spaced characters on/off (on: $n = 1$ , off: $n = 0$ )	SP BS CR ESC : ESC P ( $n$ )
<b>Vertical Control</b> Line feed Form feed Advance paper $n/216$ inch ( $1 \leq n \leq 255$ ) Advance paper $n/180$ inch (in AG mode) ( $1 \leq n \leq 255$ ) Set line spacing to $1/8$ lines Set line spacing to $7/72$ inch Set line spacing to $n/216$ inch ( $0 \leq n \leq 255$ ) Set line spacing to $n/180$ inch (in AG mode) ( $0 \leq n \leq 255$ ) Preset line spacing to $n/72$ inch ( $1 \leq n \leq 255$ ) Preset line spacing to $n/60$ inch (in AG mode) ( $1 \leq n \leq 255$ ) Set line spacing to $1/6$ inch or to the value preset by line spacing command ESC A ( $n$ )	LF FF ESC J ( $n$ ) ESC J ( $n$ ) ESC 0 ESC 1 ESC 3 ( $n$ ) ESC 3 ( $n$ ) ESC A ( $n$ ) ESC A ( $n$ ) ESC 2

Function	Command
<p>Change graphics line spacing base to                      1/216 or 1/180 inch (for ESC J and ESC 3)  <math>m_1 = 4, m_2 = 0</math>  <math>0 \leq t_1 \leq 255, 0 \leq t_2 \leq 255, t_3 = 0</math>  <math>t_4 = 180</math> or 216</p>	<p>ESC [ \ ( <math>m_1</math>) ( <math>m_2</math>)                      ( <math>t_1</math>) ... ( <math>t_4</math>)</p>
<p><b>Tabulation</b>                      Horizontal tab execution                      Set horizontal tabs                      The values of <math>n_1</math> to <math>n_k</math> in this command are the ASCII values of the print columns (at the current character width) at which tabs are to be set. (<math>1 \leq n \leq 255</math>) (<math>1 \leq k \leq 28</math>)                      Clear all horizontal tabs                      Move print position right by <math>n/120</math> inch (<math>0 \leq n_1, n_2 \leq 255</math>) (<math>n = n_1 + n_2 \times 256</math>)                      Vertical tab execution                      Set vertical tabs                      The values of <math>n_1</math> to <math>n_k</math> in this command are the ASCII values of the lines (at the current line spacing) at which tabs are to be set. (<math>1 \leq n \leq 255</math>) (<math>1 \leq k \leq 64</math>)                      Clear all vertical tabs                      Reset tabs to default values</p>	<p>HT                      ESC D ( <math>n_1</math>) ...                      ( <math>n_k</math>) NUL                        ESC D NUL                      ESC d ( <math>n_1</math>) ( <math>n_2</math>)                        VT                      ESC B ( <math>n_1</math>) ...                      ( <math>n_k</math>) NUL                        ESC B NUL                      ESC R</p>
<p><b>Page Formatting</b>                      Set left margin at column <math>n</math> and right margin at column <math>m</math> (<math>0 \leq n, m \leq 255</math>)                      Set perforation skip by <math>n</math> lines (<math>1 \leq n \leq 255</math>)                      Perforation skip off                      Set page length to <math>n</math> lines (<math>1 \leq n \leq 255</math>)                      Set page length to <math>n</math> inches (<math>1 \leq n \leq 22</math>)                      Set top of form</p>	<p>ESC X ( <math>n</math>) ( <math>m</math>)                        ESC N ( <math>n</math>)                        ESC O                      ESC C ( <math>n</math>)                      ESC C NUL ( <math>n</math>)                      ESC 4</p>

Function	Command																					
<p><b>Character Set Control</b></p> <p>Select character set 1</p> <p>Select character set 2</p> <p>Print <math>n_1 + n_2 \times 256</math> characters from all-character set (<i>chars.</i>: codes of characters to print, <math>0 \leq \text{chars.} \leq 255</math>)</p> <p>Print a character from all-character set (<i>char.</i>: a code of character to print, <math>0 \leq \text{char.} \leq 255</math>)</p> <p>Select code page table <math>n</math> (<math>0 \leq n_1, n_2 \leq 255</math>) (<math>n = n_1 + n_2 \times 256</math>)</p> <table border="1" data-bbox="611 734 932 996"> <thead> <tr> <th><math>c_1</math></th> <th><math>c_2</math></th> <th>Code page ID</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>Ignore command</td> </tr> <tr> <td>1</td> <td>181</td> <td>Code page 437</td> </tr> <tr> <td>3</td> <td>82</td> <td>Code page 850</td> </tr> <tr> <td>3</td> <td>92</td> <td>Code page 860</td> </tr> <tr> <td>3</td> <td>95</td> <td>Code page 863</td> </tr> <tr> <td>3</td> <td>97</td> <td>Code page 865</td> </tr> </tbody> </table> <p>Clear input buffer</p> <p>Select printer</p> <p>Deselect printer (ignore input)</p>	$c_1$	$c_2$	Code page ID	0	0	Ignore command	1	181	Code page 437	3	82	Code page 850	3	92	Code page 860	3	95	Code page 863	3	97	Code page 865	<p>ESC 7</p> <p>ESC 6</p> <p>ESC \ (<math>n_1</math>) (<math>n_2</math>) (<i>chars.</i>)</p> <p>ESC ^ (<i>char.</i>)</p> <p>ESC [ T (<math>n_1</math>) (<math>n_2</math>) 0 0 (<math>c_1</math>) (<math>c_2</math>)</p> <p>CAN</p> <p>DC1</p> <p>ESC Q #</p>
$c_1$	$c_2$	Code page ID																				
0	0	Ignore command																				
1	181	Code page 437																				
3	82	Code page 850																				
3	92	Code page 860																				
3	95	Code page 863																				
3	97	Code page 865																				
<p><b>Downloading</b></p> <p>Select resident or downloaded font</p> <p>Ex. <math>n = 0</math>: Resident Draft                    2: Resident Courier                    4: Downloaded Draft                    6: Downloaded Courier</p> <p>Create download font</p>	<p>ESC I (<math>n</math>)</p> <p>ESC = (<math>n_1</math>) (<math>n_2</math>) ID (<math>m_1</math>) (<math>m_2</math>) (<i>data</i>)</p>																					

Function	Command
<p><b>Bit Image Graphics</b></p> <p>Single-density graphics</p> <p>Double-density graphics</p> <p>High-speed double-density graphics</p> <p>Quadruple-density graphics</p> <p>High-resolution graphics</p> <p>Select graphics mode (in AG mode only)</p>	<p>ESC K (<math>n_1</math>) (<math>n_2</math>) (<i>data</i>)</p> <p>ESC L (<math>n_1</math>) (<math>n_2</math>) (<i>data</i>)</p> <p>ESC Y (<math>n_1</math>) (<math>n_2</math>) (<i>data</i>)</p> <p>ESC Z (<math>n_1</math>) (<math>n_2</math>) (<i>data</i>)</p> <p>ESC [ g (<math>n_1</math>) (<math>n_2</math>) (<math>m</math>) (<i>data</i>)</p> <p>ESC * (<math>m</math>) (<math>c_1</math>) (<math>c_2</math>) (<i>data</i>)</p>
<p><b>Miscellaneous</b></p> <p>Sound the bell</p> <p>Unidirectional printing on/off (on: <math>n = 1</math>, off: <math>n = 0</math>)</p> <p>Add a carriage return to all line feeds (on: <math>n = 1</math>, off: <math>n = 0</math>)</p> <p>Printer offline</p> <p>Enter online setup mode*</p> <p>Select default settings</p>	<p>BEL</p> <p>ESC U (<math>n</math>)</p> <p>ESC 5 (<math>n</math>)</p> <p>ESC j</p> <p>ESC e ONLINE (<i>data</i>)</p> <p>ESC [ K (<math>n_1</math>) (<math>n_2</math>) (<math>i</math>) (<i>ID</i>) (<math>p_1</math>) (<math>p_2</math>)</p>



## EPSON ESC/P2 EMULATION

This section describes the printer commands for the Epson ESC/P2 emulation. Asterisks in the “Function” column indicate extended commands that are not supported by the original printer.

Function	Command
<b>Print Mode Control</b>	
Double-strike (bold) printing on	ESC G
Double-strike (bold) printing off	ESC H
Emphasized (shadow) printing on	ESC E
Emphasized (shadow) printing off	ESC F
Italic printing on	ESC 4
Italic printing off	ESC 5
Select character style	ESC q ( <i>n</i> )
<i>n</i> = 0: Normal	
1: Outlined	
2: Shaded	
3: Outlined and shadowed	
One-line double-width characters on	SO or ESC SO
One-line double-width characters off	DC4
Double-width characters on/off	ESC W ( <i>n</i> )
(on: <i>n</i> = 1, off: <i>n</i> = 0)	
Double-height characters on/off	ESC w ( <i>n</i> )
(on: <i>n</i> = 1, off: <i>n</i> = 0)	
Condensed characters on	SI or ESC SI
Condensed characters off	DC2
Subscript or superscript printing on	ESC S ( <i>n</i> )
(subscript: <i>n</i> = 1, superscript: <i>n</i> = 0)	
Subscript and superscript printing off	ESC T
Underline on/off	ESC - ( <i>n</i> )
(on: <i>n</i> = 1, off: <i>n</i> = 0)	



Function	Command
<p>Set character pitch to <math>(n_1 + n_2 \times 256)/360</math> inch  <math>(0 \leq n_1 \leq 255) (0 \leq n_2 \leq 4)</math></p> <p>Select character pitch (specify unit o pitch)</p> <p><math>n_1 = 1, n_2 = 0</math></p> <p><math>d = 10</math> to <math>19</math>: <math>10/3600</math> inch = <math>1/360</math> inch</p> <p><math>d = 20</math> to <math>29</math>: <math>20/3600</math> inch = <math>1/180</math> inch</p> <p><math>d = 30</math> to <math>39</math>: <math>30/3600</math> inch = <math>1/120</math> inch</p> <p><math>d = 40</math> to <math>49</math>: <math>40/3600</math> inch = <math>1/90</math> inch</p> <p><math>d = 50</math> to <math>59</math>: <math>50/3600</math> inch = <math>1/72</math> inch</p> <p><math>d = 60</math> to <math>69</math>: <math>60/3600</math> inch = <math>1/60</math> inch</p>	<p>ESC c <math>(n_1) (n_2)</math></p> <p>ESC ( U <math>(n_1) (n_2) (d)</math></p>
<p><b>Vertical Control</b></p> <p>Line feed</p> <p>Form feed FF</p> <p>Advance paper <math>n/180</math> inch <math>(1 \leq n \leq 255)</math></p> <p>Set line spacing to <math>1/8</math> inch</p> <p>Set line spacing to <math>n/180</math> inch <math>(0 \leq n \leq 255)</math></p> <p>Set line spacing to <math>n/60</math> inch <math>(0 \leq n \leq 127)</math></p> <p>Set line spacing to <math>1/6</math> inch</p> <p>Set line spacing to <math>n/360</math> inch <math>(0 \leq n \leq 255)</math></p>	<p>LF</p> <p>ESC J <math>(n)</math></p> <p>ESC 0</p> <p>ESC 3 <math>(n)</math></p> <p>ESC A <math>(n)</math></p> <p>ESC 2</p> <p>ESC + <math>(n)</math></p>
<p><b>Tabulation</b></p> <p>Horizontal tab execution</p> <p>Set horizontal tabs</p> <p>The values of <math>n_1</math> to <math>n_k</math> in this command are the ASCII values of the print columns (at the current character width) at which tabs are to be set.</p> <p><math>(1 \leq n \leq 255) (1 \leq k \leq 32)</math></p> <p>Move print position <math>n/60^{(*)}</math> inch right from left margin <math>(n = n_1 + n_2 \times 256)</math></p> <p>Move print position <math>n/120^{(*)}</math> inch (for draft) or <math>n/180^{(*)}</math> inch (for letter) left or right from the current position <math>(n = n_1 + n_2 \times 256)</math></p> <p>Vertical tab execution</p>	<p>HT</p> <p>ESC D</p> <p><math>(n_1) \dots (n_k)</math> NUL</p> <p>ESC \$ <math>(n_1) (n_2)</math></p> <p>ESC \ <math>(n_1) (n_2)</math></p> <p>VT</p>

\*1 This pitch is the default, but can be changed by the ESC ( U command beforehand.

Function	Command
<p>Set vertical tabs</p> <p>The values of <math>n_1</math> to <math>n_k</math> in this command are the ASCII values of the lines (at the current line spacing) at which tabs are to be set.</p> <p><math>(1 \leq n \leq 255)</math> <math>(1 \leq k \leq 16)</math></p>	<p>ESC B (<math>n_1</math>) ... (<math>n_k</math>) NUL</p>
<p>Move to dot line <math>(d_1 + d_2 \times 256)/360^{(*)}</math> inch</p> <p><math>n_1 = 2, n_2 = 0</math></p> <p><math>(0 \leq d_1 \leq 255)</math> <math>(0 \leq d_2 \leq 127)</math></p>	<p>ESC ( V (<math>n_1</math>) (<math>n_2</math>) (<math>d_1</math>) (<math>d_2</math>)</p>
<p>Vertical relative move by <math>(d_1 + d_2 \times 256)/360^{(*)}</math> inch</p> <p><math>n_1 = 2, n_2 = 0</math></p> <p><math>(0 \leq d_1 \leq 255)</math> <math>(0 \leq d_2 \leq 127)</math></p> <p><math>-32768 \leq d_1 + d_2 \times 256 \leq 32768</math></p>	<p>ESC ( v (<math>n_1</math>) (<math>n_2</math>) (<math>d_1</math>) (<math>d_2</math>)</p>
<p><b>Page Formatting</b></p>	
<p>Set right margin to column n</p> <p><math>(1 \leq n \leq 255)</math></p>	<p>ESC Q (<math>n</math>)</p>
<p>Set left margin to column n</p> <p><math>(0 \leq n \leq 255)</math></p>	<p>ESC l (<math>n</math>)</p>
<p>Set top and bottom margins from top of page</p> <p><math>n_1 = 4, n_2 = 0</math></p> <ul style="list-style-type: none"> <li>• Top margin = <math>(t_1 + t_2 \times 256)/360^{(*)}</math> inch <math>(0 \leq t_1 \leq 255)</math> <math>(0 \leq t_2 \leq 127)</math></li> <li>• Bottom margin = <math>(b_1 + b_2 \times 256)/360^{(*)}</math> inch <math>(0 \leq b_1 \leq 255)</math> <math>(0 \leq b_2 \leq 127)</math></li> </ul>	<p>ESC ( c (<math>n_1</math>) (<math>n_2</math>) (<math>t_1</math>) (<math>t_2</math>) (<math>b_1</math>) (<math>b_2</math>)</p>
<p>Set perforation skip by n lines</p> <p><math>(1 \leq n \leq 127)</math></p>	<p>ESC N (<math>n</math>)</p>
<p>Perforation skip off</p>	<p>ESC O</p>
<p>Set page length to n lines <math>(1 \leq n \leq 127)</math></p>	<p>ESC C (<math>n</math>)</p>
<p>Set page length to n inches <math>(1 \leq n \leq 22)</math></p>	<p>ESC C NUL (<math>n</math>)</p>
<p>Set page length to <math>(d_1 + d_2 \times 256)/360^{(*)}</math> inch</p> <p><math>n_1 = 2, n_2 = 0</math></p> <p><math>(0 \leq d_1 \leq 255)</math> <math>(0 \leq d_2 \leq 127)</math></p>	<p>ESC ( C (<math>n_1</math>) (<math>n_2</math>) (<math>d_1</math>) (<math>d_2</math>)</p>

\*1 This pitch is the default, but can be changed by the ESC ( U command beforehand.

Function	Command
<b>Character Set Control</b>	
Select character set 1	ESC 7
Select character set 2	ESC 6
Select character set table	ESC t (n)
n = 0: Italics character set	
1: Graphics character set	
2: Downloaded character set	
3: Graphics character set	
Select international character set	ESC R (n)
n = 0: USA	
1: France	
2: Germany	
3: United Kingdom	
4: Denmark 1	
5: Sweden	
6: Italy	
7: Spanish 1	
8: Japan	
9: Norway	
10: Denmark 2	
11: Spanish 2	
12: Latin America	
13: Korea	
64: Legal	

Function	Command
<p>Assign a character set to active character set number 0 to 3  <math>n_1 = 3, n_2 = 0</math>  <math>d_1 =</math> 0: Active character set number 0                    1: Active character set number 1                    2: Active character set number 2                    3: Active character set number 3  <math>d_2 =</math> 0: Italic                    1: PC 437 (USA)                    3: PC 850 (Multilingual)                    7: PC 860 (Portugal)                    8: PC 863 (Canada-French)                    9: PC 865 (Norway)  <math>d_3 = 0</math>            Print <math>n_1 + n_2 \times 256</math> characters from all-character set  <math>(0 \leq n_1 \leq 255) (0 \leq n_2 \leq 127)</math>  <math>(0 \leq n_1 + n_2 \times 256 \leq 255)</math>  <math>(0 \leq \text{character codes} \leq 254)</math>            Clear input buffer            Delete a character            Force most significant bit to 1            Force most significant bit to 0            Cancel control over most significant bit</p>	<p>ESC ( t (<math>n_1</math>) (<math>n_2</math>)  <math>(d_1) (d_2) (d_3)</math></p> <p>ESC ( ^ (<math>n_1</math>) (<math>n_2</math>)  <math>(\text{character codes})</math></p> <p>CAN            DEL            ESC &gt;            ESC =            ESC #</p>
<p><b>Font Selection and Downloading</b>            Select font ESC % (<math>n</math>)  <math>n = 0</math>: Resident character set                    1: Downloaded character set            Select letter or draft quality  <math>n = 0</math>: Draft                    1: Letter</p>	<p>ESC x (<math>n</math>)</p>

Function	Command
<p>Select type style</p> <ul style="list-style-type: none"> <li>•Bitmap font:                             <ul style="list-style-type: none"> <li><math>n = 0</math>: Courier</li> <li>1: Courier</li> <li>2: Courier</li> <li>3: Prestige</li> <li>4: Courier</li> <li>5: OCR-B</li> <li>6: OCR-A</li> <li>7: Courier</li> <li>8: Courier</li> <li>9: Courier</li> </ul> </li> <li>•Scalable font:                             <ul style="list-style-type: none"> <li><math>n = 0</math>: Timeless</li> <li>1: Nimbus Sans ®</li> <li>2: Courier</li> <li>3: Timeless</li> <li>4: Timeless</li> <li>5: Timeless</li> <li>6: Timeless</li> <li>7: Timeless</li> <li>8: Timeless</li> <li>9: Timeless</li> </ul> </li> </ul>	<p>ESC k (<math>n</math>)</p>
<p>Set scalable font mode</p> <ul style="list-style-type: none"> <li>• <math>m</math> sets character pitch.                             <ul style="list-style-type: none"> <li><math>m = 0</math>: Keep previous pitch</li> <li>1: Set proportional space mode</li> <li><math>m \geq 5</math>: Select character pitch (<math>m/360</math> inch) (Reset proportional space mode)</li> </ul> </li> <li>• <math>n_1</math> and <math>n_2</math> set point size of font. Point size = <math>(n_1 + n_2 \times 256) \times 0.5</math> point (<math>0 \leq n_1 \leq 255</math>) (<math>0 \leq n_2 \leq 127</math>)</li> </ul>	<p>ESC X m (<math>n_1</math>) (<math>n_2</math>)</p>
<p>Copy resident character set to download area Create download font</p>	<p>ESC : NUL (<math>n</math>) (<math>s</math>) ESC &amp; NUL (<math>n_1</math>) (<math>n_2</math>) (<math>d_0</math>) (<math>d_1</math>) (<math>d_2</math>) (<math>data</math>)</p>

Function	Command
<b>Bit Image Graphics</b>	
Graphics type m graphics	ESC * (m) (n <sub>1</sub> ) (n <sub>2</sub> ) (data)
Bit image mode definition	ESC ? (s) (n)
Single-density graphics	ESC K (n <sub>1</sub> ) (n <sub>2</sub> ) (data)
Double-density graphics	ESC L (n <sub>1</sub> ) (n <sub>2</sub> ) (data)
High-speed double-density graphics	ESC Y (n <sub>1</sub> ) (n <sub>2</sub> ) (data)
Quadruple-density graphics	ESC Z (n <sub>1</sub> ) (n <sub>2</sub> ) (data)
Select raster image graphics n <sub>1</sub> = 1, n <sub>2</sub> = 0 d = 1: Raster image graphics mode	ESC ( G (n <sub>1</sub> ) (n <sub>2</sub> ) (d)
Print raster image graphics	ESC . (c) (v) (h) (m) (n <sub>1</sub> ) (n <sub>2</sub> ) (data)
<b>Miscellaneous</b>	
Sound the bell	BEL
Move print head to home position	ESC <
Unidirectional printing on/off (on: n = 1, off: n = 0)	ESC U (n)
Initialize printer	ESC @
Enter online setup mode *	ESC e ONLINE (data)

\* Indicates extended commands not supported by the original printer.



## D

## INTERFACE INFORMATION

This printer can communicate with a computer through a Centronics parallel interface, a RS-232C serial interface, a USB interface, or a LAN interface. You can specify the interface selection mode so that the printer uses which interface or it can automatically select the interface from which it first receives data.

This appendix provides information you may need for wiring your own interface cables or for programming computer-to-printer communications. Most users do not need the information in this appendix. To simply connect your printer to your computer, follow the instructions in Chapter 2.

### PARALLEL INTERFACE

This parallel interface can operate in the following two modes:

- **Unidirectional (forward channel) mode or conventional mode:** This printer supports a conventional Centronics interface.
- **Bidirectional (forward/reverse channel) mode or nibble mode:** This printer supports a bidirectional communication per Nibble mode of the IEEE 1284 Standard.

The cable connector at the printer side should be a shielded, Amphenol DDK 57FE-30360 or equivalent.

The connector pin assignments are given in the following tables by modes. In the tables:

- “Input” denotes a signal from the computer to the printer.
- “Output” denotes a signal from the printer to the computer.
- The return lines specified in the second column represent twisted pairs, with one side connected to signal ground.
- The standard signal levels are 0.0 to +0.4 V (low), and +2.4 to +5.0 V (high).

**Compatible Mode**

Pin No.	Return Pin No.	Signal name	Direction	Description
1	19	$\overline{\text{Data Strobe}}$ (DSTB)	Input	This signal is a strobe pulse for reading data (Data 1 to 8). The printer reads data when this signal is low. The pulse width must be 1 $\mu\text{s}$ or more at the receiving terminal.
2-9	20-27	Data 1 to 8	Input	Data 8 (pin 9) is the most significant bit; however, this pin is not used in 7-bit ASCII communications. Logical 1 signals must go high at least 1 $\mu\text{s}$ before the falling edge of the $\overline{\text{Data Strobe}}$ signal and must stay high for at least 1 $\mu\text{s}$ after the rising edge.
10	28	$\overline{\text{Acknowledge}}$ (ACK)	Output	This pulse signal indicates that the printer has received data and is ready to accept the next set of data. This signal is also sent when the printer is switched from offline to online.
11	29	Busy	Output	Data cannot be received when this signal is high. This signal is high during data entry, when the printer is offline, when the buffer is full, or when an error occurs.
12	30	Paper Empty (PE)	Output	This signal is high when the printer is out of paper.

Pin No.	Return Pin No.	Signal name	Direction	Description
13	–	Select (SLCT)	Output	This signal is high when the printer is online.
14	–	Auto Feed XT	Input	Not used
15	–	–	–	No connection
16	–	Signal Ground	–	Logic ground level (0 V)
17	–	Frame Ground	–	Printer chassis ground line. FG and SG are connected.
18	–	+5V	Output	+5 V source (up to 300 mA)
19–30	–	Signal Ground	–	Twisted pair return lines
31	–	Input Prime (INPRM)	Input	If this signal is low for more than 50 $\mu$ s, the printer is reset to the initial condition and is placed online.
32	–	Fault	Output	This signal is low when the printer is offline, paper is out, or when there is a printer error.
33	–	Signal Ground	–	Logic ground level (0 V)
34	–	–	–	No connection
35	–	+5 VR	Output	Pulled up to +5 V through a 3.3 k $\Omega$ resistor
36	–	SLCT-IN	Input	Not used

### Nibble Mode

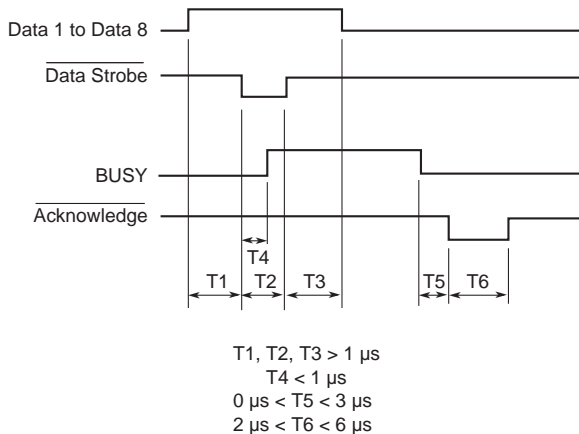
Pin numbers 2 to 9, 15 to 31, and 33 to 35 are the same as the conventional mode.

Pin No.	Return Pin No.	Signal name	Direction	Description
1	19	Host Clock	Input	This signal is set high when the host requests the reverse data transfer phase (nibble mode).
10	28	Printer Clock	Output	Reverse data transfer phase: This signal goes high when data being sent to the host is established. Reverse idle phase: This signal is set low then goes high to interrupt the host, indicating that data is available.
11	29	Printer Busy	Output	Reverse data transfer phase: Data bit 3, data bit 7, then forward path (host to printer) busy status
12	30	Ack Data Req	Output	Reverse data transfer phase: Data bit 2, then data bit 6 Reverse idle phase: This signal is set high until the host requests <u>data and</u> , after that, follows the Data Available signal.
13	–	X Flag	Output	Reverse data transfer phase: Data bit 1, then data bit 5

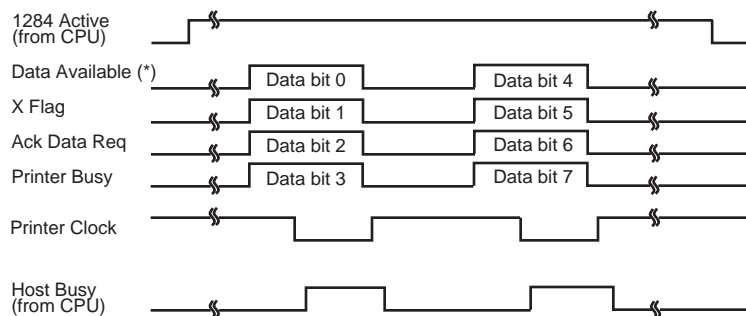
Pin No.	Return Pin No.	Signal name	Direction	Description
14	–	Host Busy	Input	<p>Reverse data transfer phase: This signal is set low when the host can receive data, and goes high when the host has received data. Following a reverse data transfer, the interface enters the reverse idle phase when the Host Busy signal goes low and the printer has no data.</p> <p>Reverse idle phase: This signal goes high when the Printer Clock signal goes low so that the interface re-enters the reverse data transfer phase. If it goes high with the 1284 Active signal low, the 1284 idle phase is aborted and the interface returns to the compatibility mode.</p>
32	–	$\overline{\text{Data Available}}$	Output	<p>Reverse data transfer phase: This signal is set low when the printer is ready to send data to the host. During the data transfer, it is used as data bit 0 (LSB), then data bit 4.</p> <p>Reverse idle phase: This signal is used to indicate that data is available.</p>
36	–	1284 Active	Input	This signal goes high to cause the printer to enter the reverse data transfer phase (nibble mode).

### Data Transmission Timing

In unidirectional mode (conventional Centronics interface), this printer guarantees the received data when the Data and Data Strobe signals from the computer have the following timing with respect to the Busy and Acknowledge signals from the printer.



In bidirectional mode (nibblemode), this printer can send data to the computer. Data is sent in units of four bits (nibble) using four output signal lines as data paths. The following outlines one byte of data sent during reverse data transfer phase in nibble mode.



\* Data Available is assigned for the cable.

**SERIAL INTERFACE**

RS-232C is the standard serial interface for data terminal equipment. The cable connector at the printer side should be a D-subminiature Cannon or Cinch DB-25P male connector or equivalent that conforms to EIA standards.

The table that follows shows the pin assignments commonly used by most computers. In the table:

- “Input” denotes a signal from the computer to the printer.
- “Output” denotes a signal from the printer to the computer.
- The signal level for mark state (logical 1) is -3 V or lower; for space state (logical 0), it is +3 V or higher.

Pin No.	Signal Name	Direction	Description
1	FG	–	Frame Ground
2	TD	Output	Transmitted Data. This pin carries information from the printer to the computer.
3	RD	Input	Received Data. This pin carries information from the computer to the printer.
4	RTS	Output	Request To Send. Spaces are sent when the printer is ready to transmit data.
5	CTS	Input	Clear To Send. Spaces are sent when the computer is ready to receive data.
6	DSR	Input	Data Set Ready. Spaces are sent when the computer has been powered on and is ready to receive or transmit data.
7	SG	–	Signal Ground (common return)
8	CD	Input	Carrier Detect. Spaces are sent when the computer allows the printer to receive data.
11	RC	Output	Reverse Channel. This signal is used instead of the DTR signal in the RC protocol. Spaces are sent when the printer is ready to receive or transmit data.
20	DTR	Output	Data Terminal Ready. Spaces are sent when the printer has been powered on and is ready to receive or transmit data.

## Serial Options

The serial options for the computer and the printer must match. Use the printer control panel, the computer operating system, or your software to change options specified as “selectable.”

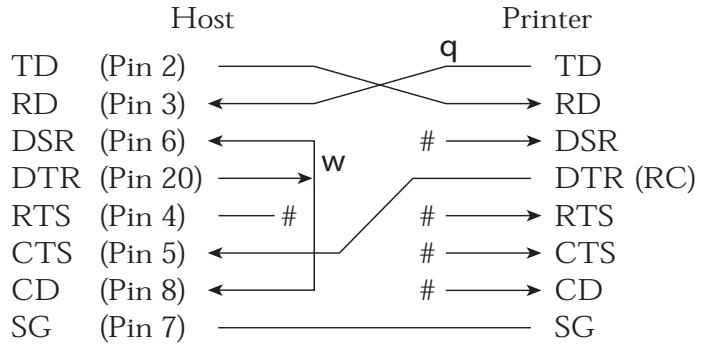
<b>Transmission mode:</b>	Asynchronous, full duplex, or half duplex (selectable)
<b>Speed:</b>	150, 300, 600, 1200, 2400, 4800, 9600, or 19200 baud (selectable)
<b>Data bits:</b>	7 or 8 bits (selectable)
<b>Parity bit:</b>	Odd, even, mark, space, or none (selectable)
<b>Start bit:</b>	1 bit
<b>Stop bit:</b>	1 or 2 bits (selectable)
<b>Protocol:</b>	XON/XOFF (DC1/DC3), DTR (Data Terminal Ready), or RC (Reverse Channel) (selectable)
<b>Buffer size:</b>	256, 2K, 8K, 24K, 32K, 96K, or 128K bytes (selectable)

## Cable Wiring

This printer allows two types of serial communication control: DSR-enabled and DSR-disabled. The type of control required is determined by your computer requirements. The type of control also affects the way the interface cable is wired. To determine whether you need DSR-enabled control or DSR-disabled control, use the printer HARDWRE function (see Chapter 5).

DSR-disabled control offers simpler cabling and communication than does DSR-enabled control. DSR-disabled control can be used to interface with an IBM PC and most other personal computers. With DSR-disabled control, the input control signals DSR, CTS, and CD are always considered high, regardless of their actual states. Therefore, no wire connection for these pins is required. The following figure shows the wiring required for connection to an IBM PC.



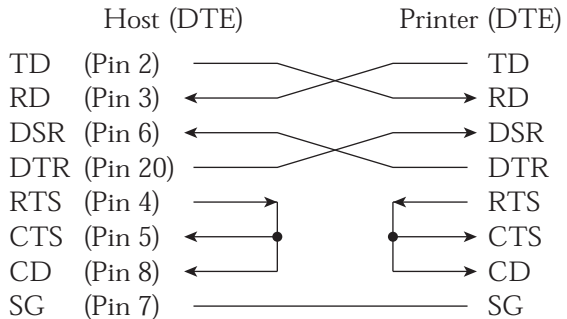


# indicates an open wire.

Wire **q** is unnecessary for the DTR (or RC) protocol.  
Some computers may not require wire **w**.

DSR-enabled control enables communication using an RS-232C interface. The CTS and DSR input control signals are enabled; CD is ignored. DSR must be high when the printer receives data. If the printer has data to be transmitted to the computer, the printer transmits the data when both DSR and CTS are high.

When using DSR-enabled control, use a straight-through cable to connect to a DCE (data communications equipment) device. Use a null-modem cable to connect to a DTE (data terminal equipment) device, as shown below.



## Serial Protocols

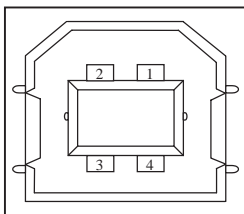
A protocol is a set of instructions that control the way data is transmitted between devices such as a computer and printer. The protocol ensures that the computer does not send information to the printer faster than the information can be processed. By telling the computer when the printer can receive data, the protocol prevents the printer's buffer from overflowing.

This printer offers a choice of four different protocols for connection to a variety of computers: XON/XOFF, DTR, and RC. If your computer documentation does not recommend a particular protocol, try DTR. The following table describes the three protocols.

Protocol	Description
XON/XOFF (DC1/DC3)	When the printer is ready to receive data, it sends the XON (DC1) code (hex 11). When fewer than 255 bytes of space remain in the buffer (or when the printer is taken offline), the printer sends the XOFF (DC3) code (hex 13). (When the input buffer is configured for 256 bytes, the buffer limit is reduced from 255 bytes to 63 bytes.) The computer must stop transmitting data within 255 (63) characters of receiving the XOFF code, or information may be lost. If paper runs out, the printer sends an NAK code (hex 15).
DTR	DTR is a hardware protocol; that is, the DTR signal on interface cable pin 20 is used to control the flow of data rather than transmission of a character code. When the printer is ready to receive data, pin 20 is high. When fewer than 255 (63) bytes of space remain in the buffer (or when the printer is taken offline), pin 20 is low. The computer must stop transmitting data within 255 (63) characters of DTR being low, or information may be lost.
RC	The RC protocol is the same as the DTR protocol, except that the Reverse Channel signal (pin 11) is used instead of the Data Terminal Ready signal (pin 20).

**USB INTERFACE****Cable**

This printer supports the USB 1.1 Full speed specification. To connect to the host, use USB 2.0-compliant INF cables (5 meters (196 inch) or shorter). (Use the shielded cables.)

**Connector pin alignment**

No.	Signal line name	Function
1	vbus	Power supply
2	D-	Data transfer
3	D+	Data transfer
4	GND	Signal ground
Shell	Shield	

**- Connector specification****Printer side**

Type B receptacle (female)

**Cable side**

Upstream port

Type B plug (male)

**Specification****- Basic specification**

USB interface compliant

**Note****It does not guarantee all operations on hosts.****- Power control**

Self-power device

**- Transmission mode**

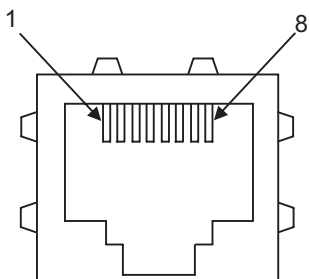
Full speed (Maximum 12 Mbps + 0.25%)

## LAN INTERFACE

### Cable

This printer supports the 10Base-T and 100Base-TX cables.

### Connector pin alignment



No.	Signal line name	DIR	Function
1	TXO+	NIC-HUB	Transmit data +
2	TXO-	NIC-HUB	Transmit data -
3	RXI+	HUB-NIC	Receive data +
4	-	-	-
5	-	-	-
6	RXI-	HUB-NIC	Receive data -
7	-	-	-
8	-	-	-



## CHARACTER SETS

### CHARACTER SETS 1 AND 2 (DPL24C PLUS AND IBM XL24E EMULATION)

Below are character sets 1 and 2 of Code Page 437, available in the DPL24C PLUS command set and the IBM Proprinter XL24E emulation. Characters enclosed in boxes differ for sets 1 and 2.

Characters in set 2 also vary with the national character set. Code Page 437 is for the USA character set.

#### Code Page 437 Character Set 1

LNH	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL DLE SP	0	@	P	~	p	NUL DLE	á	í	ó	ú	ü	ÿ	ÿ	ÿ	ÿ
1	SOH DC1 !	1	A	Q	a	q	SOH DC1	í	ó	ú	ü	ÿ	ÿ	ÿ	ÿ	ÿ
2	STX DC2 "	2	B	R	b	r	STX DC2	ó	ú	ü	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ
3	ETX DC3 #	3	C	S	c	s	ETX DC3	ú	ü	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ
4	EOT DC4 \$	4	D	T	d	t	EOT DC4	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ
5	ENQ NAK %	5	E	U	e	u	ENQ NAK	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ
6	ACK SYN &	6	F	V	f	v	ACK SYN	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ
7	BEL ETB '	7	G	W	g	w	BEL ETB	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ
8	BS CAN (	8	H	X	h	x	BS CAN	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ
9	HT EM )	9	I	Y	i	y	HT EM	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ
A	LF SUB *	:	J	Z	j	z	LF SUB	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ
B	VT ESC +	;	K	[	k	{	VT ESC	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ
C	FF FS ,	<	L	\	l		FF FS	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ
D	CR GS -	=	M	]	m	}	CR GS	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ
E	SO RS .	>	N	^	n	~	SO RS	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ
F	SI US /	?	O	_	o	DEL	SI US	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ

#### Code Page 437 Character Set 2

LNH	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL DLE SP	0	@	P	~	p	Ç È	á	í	ó	ú	ü	ÿ	ÿ	ÿ	ÿ
1	SOH DC1 !	1	A	Q	a	q	ù æ	í	ó	ú	ü	ÿ	ÿ	ÿ	ÿ	ÿ
2	STX DC2 "	2	B	R	b	r	é æ	ó	ú	ü	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ
3	ETX DC3 #	3	C	S	c	s	à ò	ú	ü	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ
4	EOT DC4 \$	4	D	T	d	t	ä ö	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ
5	ENQ NAK %	5	E	U	e	u	à ò	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ
6	ACK SYN &	6	F	V	f	v	ä ö	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ
7	BEL ETB '	7	G	W	g	w	ç è	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ
8	BS CAN (	8	H	X	h	x	è ý	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ
9	HT EM )	9	I	Y	i	y	è ù	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ
A	LF SUB *	:	J	Z	j	z	è ù	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ
B	VT ESC +	;	K	[	k	{	í ç	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ
C	FF FS ,	<	L	\	l		í ç	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ
D	CR GS -	=	M	]	m	}	í ç	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ
E	SO RS .	>	N	^	n	~	À Á	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ
F	SI US /	?	O	_	o	DEL	À Á	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ

**ITALIC AND GRAPHICS CHARACTER SETS (ESC/P2 EMULATION)**

The following shows character sets available in the Epson ESC/P2 emulation. Characters differ in codes 128 to 255 (hex 80 to FF).

**Italic Character Set**

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL DLE SP	0 @ P	~ p	NUL DLE SP	0 @ P	~ p										
1	SOH DC1 !	1 A Q a q	SOH DC1 !	1 A Q a q												
2	STX DC2 "	2 B R b r	STX DC2 "	2 B R b r												
3	ETX DC3 #	3 C S c s	ETX DC3 #	3 C S c s												
4	EOF DC4 \$	4 D T d t	EOF DC4 \$	4 D T d t												
5	ENQ NAK %	5 E U e u	ENQ NAK %	5 E U e u												
6	ACK SYN &	6 F V f v	ACK SYN &	6 F V f v												
7	BEL ETB '	7 G W g w	BEL ETB '	7 G W g w												
8	BS CAN (	8 H X h x	BS CAN (	8 H X h x												
9	HT EM )	9 I Y i y	HT EM )	9 I Y i y												
A	LF SUB *	: J Z j z	LF SUB *	: J Z j z												
B	VT ESC +	; K [ k {	VT ESC +	; K [ k {												
C	FF FS ,	< L \ l	FF FS ,	< L \ l												
D	CR GS -	= M ] m }	CR GS -	= M ] m }												
E	SO RS .	> N ^ n ~	SO RS .	> N ^ n ~												
F	SI US /	? O _ o	DEL SI US	/ ? O _ o												

**Graphics Character Set 1**

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL DLE SP	0 @ P	~ p	NUL DLE	á	:	:	:	:	:	:	:	:	:	:	:
1	SOH DC1 !	1 A Q a q	SOH DC1 !	1 A Q a q	í	:	:	:	:	:	:	:	:	:	:	:
2	STX DC2 "	2 B R b r	STX DC2 "	2 B R b r	ó	:	:	:	:	:	:	:	:	:	:	:
3	ETX DC3 #	3 C S c s	ETX DC3 #	3 C S c s	ú	:	:	:	:	:	:	:	:	:	:	:
4	EOF DC4 \$	4 D T d t	EOF DC4 \$	4 D T d t	ñ	:	:	:	:	:	:	:	:	:	:	:
5	ENQ NAK %	5 E U e u	ENQ NAK %	5 E U e u	Ñ	:	:	:	:	:	:	:	:	:	:	:
6	ACK SYN &	6 F V f v	ACK SYN &	6 F V f v	á	:	:	:	:	:	:	:	:	:	:	:
7	BEL ETB '	7 G W g w	BEL ETB '	7 G W g w	é	:	:	:	:	:	:	:	:	:	:	:
8	BS CAN (	8 H X h x	BS CAN (	8 H X h x	é	:	:	:	:	:	:	:	:	:	:	:
9	HT EM )	9 I Y i y	HT EM )	9 I Y i y	í	:	:	:	:	:	:	:	:	:	:	:
A	LF SUB *	: J Z j z	LF SUB *	: J Z j z	í	:	:	:	:	:	:	:	:	:	:	:
B	VT ESC +	; K [ k {	VT ESC +	; K [ k {	í	:	:	:	:	:	:	:	:	:	:	:
C	FF FS ,	< L \ l	FF FS ,	< L \ l	í	:	:	:	:	:	:	:	:	:	:	:
D	CR GS -	= M ] m }	CR GS -	= M ] m }	í	:	:	:	:	:	:	:	:	:	:	:
E	SO RS .	> N ^ n ~	SO RS .	> N ^ n ~	í	:	:	:	:	:	:	:	:	:	:	:
F	SI US /	? O _ o	DEL SI US	/ ? O _ o	í	:	:	:	:	:	:	:	:	:	:	:

Graphics Character Set 2

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL DLE SP	0	@	P	~	p	ç	é	á						α	≡
1	SOH DC1 !	1	A	Q	a	q	ü	æ	í						β	±
2	STX DC2 "	2	B	R	b	r	é	Æ	ó						Γ	≥
3	ETX DC3 #	3	C	S	c	s	â	ô	ú						Π	≤
4	EOF DC4 \$	4	D	T	d	t	ä	ö	û						Σ	∫
5	ENQ \$ %	5	E	U	e	u	à	ò	ñ						σ	∫
6	ACK SYN &	6	F	V	f	v	â	û	ã						μ	±
7	BEL ETB '	7	G	W	g	w	ç	ù	ó						τ	≈
8	BS CAN (	8	H	X	h	x	ê	ý	ö						θ	•
9	HT EM )	9	I	Y	i	y	è	ö	ı						φ	°
A	LF SUB *	:	J	Z	j	z	è	ü	ı						Ω	√
B	VT ESC + ;	K	[	k	{	i	c	ç	ı						δ	²
C	FF FS , <	L	\	l		i	ç	ı	ı						∞	n
D	CR GS - =	M	]	m	}	i	¥	ı	ı						∅	z
E	SO BS . >	N	^	n	~	Ä	Ä	ı	ı						ε	■
F	SI US / ?	O	_	o	DEL	Ä	f	ı	ı						∩	SP

Character Sets

**NATIONAL CHARACTER SETS (ALL EMULATIONS)**

Below are the 52 national character sets available for all emulations of this printer. These character sets support different characters and symbols specific to different languages. Note that these tables are for Courier 10, a resident font, and that some national character sets do not have some characters and symbols whose use depends on resident fonts. For details, see the table at the end of this appendix.

When the following character sets are used with the Epson ESC/P2 emulation, the printing of FFh code characters is not supported.  
 ECMA94, ISO8859, ISO-LTN, ISO-TUK, CYRILIC, LATIN-9

**PAGE437/USA (Code Page 437/USA)**

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0					@	Q	^	p	Ç	é	á	í	ó	õ	ñ	À
1		!	"	#	\$	%	&	'	(	)	*	+	,	<	=	>
2		1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
3	♥															
4	♦															
5	♣															
6	♠															
7																
8																
9																
A																
B																
C																
D																
E																
F																

**UK (British English)**

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0					@	Q	^	p	Ç	é	á	í	ó	õ	ñ	À
1		!	"	#	\$	%	&	'	(	)	*	+	,	<	=	>
2		1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
3	♥															
4	♦															
5	♣															
6	♠															
7																
8																
9																
A																
B																
C																
D																
E																
F																

**GERMAN (German)**

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0					@	Q	^	p	Ç	é	á	í	ó	õ	ñ	À
1		!	"	#	\$	%	&	'	(	)	*	+	,	<	=	>
2		1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
3	♥															
4	♦															
5	♣															
6	♠															
7																
8																
9																
A																
B																
C																
D																
E																
F																

**SWEDISH (Swedish)**

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0					@	Q	^	p	Ç	é	á	í	ó	õ	ñ	À
1		!	"	#	\$	%	&	'	(	)	*	+	,	<	=	>
2		1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
3	♥															
4	♦															
5	♣															
6	♠															
7																
8																
9																
A																
B																
C																
D																
E																
F																



ISO8859/ECMA94 (ISO 8859-1/ECMA94)

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0					@	P	^	p								
1		!	1	2	A	Q	R	a	q							
2		"	3	B	R	S	T	b	r							
3	♥	#	4	C	D	E	F	c	d							
4	♦	\$	5	D	E	F	G	d	e							
5	♣	%	6	E	F	G	H	e	f							
6		&	7	F	G	H	I	f	g							
7		'	8	G	H	I	J	g	h							
8		(	9	H	I	J	K	h	i							
9		)	A	I	J	K	L	i	j							
A		*	B	J	K	L	M	j	k							
B		+	C	K	L	M	N	k	l							
C		,	D	L	M	N	O	l	m							
D		=	E	M	N	O		m	n							
E		>	F	N	O			n	o							
F		/		O				o								

PAGE850 (Code Page 850(Multilingual))

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0					@	P	^	p								
1		!	1	2	A	Q	R	a	q							
2		"	3	B	R	S	T	b	r							
3	♥	#	4	C	D	E	F	c	d							
4	♦	\$	5	D	E	F	G	d	e							
5	♣	%	6	E	F	G	H	e	f							
6		&	7	F	G	H	I	f	g							
7		'	8	G	H	I	J	g	h							
8		(	9	H	I	J	K	h	i							
9		)	A	I	J	K	L	i	j							
A		*	B	J	K	L	M	j	k							
B		+	C	K	L	M	N	k	l							
C		,	D	L	M	N	O	l	m							
D		=	E	M	N	O		m	n							
E		>	F	N	O			n	o							
F		/		O				o								

Character Sets

PAGE852/PG852-T (Code Page 852)

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0					@	P	^	p								
1		!	1	2	A	Q	R	a	q							
2		"	3	B	R	S	T	b	r							
3	♥	#	4	C	D	E	F	c	d							
4	♦	\$	5	D	E	F	G	d	e							
5	♣	%	6	E	F	G	H	e	f							
6		&	7	F	G	H	I	f	g							
7		'	8	G	H	I	J	g	h							
8		(	9	H	I	J	K	h	i							
9		)	A	I	J	K	L	i	j							
A		*	B	J	K	L	M	j	k							
B		+	C	K	L	M	N	k	l							
C		,	D	L	M	N	O	l	m							
D		=	E	M	N	O		m	n							
E		>	F	N	O			n	o							
F		/		O				o								

PAGE855 (Code Page 855)

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0					@	P	^	p								
1		!	1	2	A	Q	R	a	q							
2		"	3	B	R	S	T	b	r							
3	♥	#	4	C	D	E	F	c	d							
4	♦	\$	5	D	E	F	G	d	e							
5	♣	%	6	E	F	G	H	e	f							
6		&	7	F	G	H	I	f	g							
7		'	8	G	H	I	J	g	h							
8		(	9	H	I	J	K	h	i							
9		)	A	I	J	K	L	i	j							
A		*	B	J	K	L	M	j	k							
B		+	C	K	L	M	N	k	l							
C		,	D	L	M	N	O	l	m							
D		=	E	M	N	O		m	n							
E		>	F	N	O			n	o							
F		/		O				o								

PAGE860 (Code Page 860(Portugal))

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				@	P	~	ç	Á	á	À	À	À	À	À	À	À
1		!	"	A	Q	a	ü	é	ê	Ê	Ê	Ê	Ê	Ê	Ê	Ê
2		!	"	B	R	b	ú	ë	ê	Ë	Ë	Ë	Ë	Ë	Ë	Ë
3	♥		#	C	S	c	õ	í	ï	Ì	Ì	Ì	Ì	Ì	Ì	Ì
4	♦		\$	D	T	d	ö	ó	ó	Ó	Ó	Ó	Ó	Ó	Ó	Ó
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PAGE863 (Code Page 863 (Canada-French))

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7			'	G	W	w	ä	ü	ü	Ü	Ü	Ü	Ü	Ü	Ü	Ü
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PAGE865 (Code Page 865(Nordic))

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PAGE866 (Code Page 866(Cyrillic))

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D		=	>	M	n	n	ø	ó	ó	Ó	Ó	Ó	Ó	Ó	Ó	Ó
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HUNGARY/HUNG-T (Hungarian)

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6	♥	♦	♣	♠												
7	♥	♦	♣	♠												
8	♥	♦	♣	♠												
9	♥	♦	♣	♠												
A	♥	♦	♣	♠												
B	♥	♦	♣	♠												
C	♥	♦	♣	♠												
D	♥	♦	♣	♠												
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SLOV/SLOV-T (Slovenian)

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
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6	♥	♦	♣	♠												
7	♥	♦	♣	♠												
8	♥	♦	♣	♠												
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B	♥	♦	♣	♠												
C	♥	♦	♣	♠												
D	♥	♦	♣	♠												
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Character Sets

POLISH/POLSH-T (Polish)

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
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6	♥	♦	♣	♠												
7	♥	♦	♣	♠												
8	♥	♦	♣	♠												
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B	♥	♦	♣	♠												
C	♥	♦	♣	♠												
D	♥	♦	♣	♠												
E	♥	♦	♣	♠												
F	♥	♦	♣	♠												

MAZOWIA/MAZOW-T (Mazowian)

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
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6	♥	♦	♣	♠												
7	♥	♦	♣	♠												
8	♥	♦	♣	♠												
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B	♥	♦	♣	♠												
C	♥	♦	♣	♠												
D	♥	♦	♣	♠												
E	♥	♦	♣	♠												
F	♥	♦	♣	♠												

LATIN2/LATN2-T (Latin2)

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
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KAMENIC/KAMEN-T (Kamenicky)

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
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TURKY/TURKY-T (Turkish)

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
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CYRILIC (Cyrillic)

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
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IBM437 (IBM 437)

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
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IBM851 (IBM 851)

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ELOT928 (ELOT 928)

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PG-DHN (Code Page DHN)

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Character Sets

LATIN-P (Latin Polish)

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4	♦	2	B	R	S	T	U	V	W	X	Y	Z	[	]	~	
5	♣	3	C	R	S	T	U	V	W	X	Y	Z	[	]	^	
6	♠	4	D	R	S	T	U	V	W	X	Y	Z	[	]	~	
7		5	E	R	S	T	U	V	W	X	Y	Z	[	]	^	
8		6	F	R	S	T	U	V	W	X	Y	Z	[	]	~	
9		7	G	R	S	T	U	V	W	X	Y	Z	[	]	^	
A		8	H	R	S	T	U	V	W	X	Y	Z	[	]	~	
B		9	I	R	S	T	U	V	W	X	Y	Z	[	]	^	
C		A	J	R	S	T	U	V	W	X	Y	Z	[	]	~	
D		B	K	R	S	T	U	V	W	X	Y	Z	[	]	^	
E		C	L	R	S	T	U	V	W	X	Y	Z	[	]	~	
F		D	M	R	S	T	U	V	W	X	Y	Z	[	]	^	
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ISO-LTN (ISO Latin)

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4	♦	2	B	R	S	T	U	V	W	X	Y	Z	[	]	~	
5	♣	3	C	R	S	T	U	V	W	X	Y	Z	[	]	^	
6	♠	4	D	R	S	T	U	V	W	X	Y	Z	[	]	~	
7		5	E	R	S	T	U	V	W	X	Y	Z	[	]	^	
8		6	F	R	S	T	U	V	W	X	Y	Z	[	]	~	
9		7	G	R	S	T	U	V	W	X	Y	Z	[	]	^	
A		8	H	R	S	T	U	V	W	X	Y	Z	[	]	~	
B		9	I	R	S	T	U	V	W	X	Y	Z	[	]	^	
C		A	J	R	S	T	U	V	W	X	Y	Z	[	]	~	
D		B	K	R	S	T	U	V	W	X	Y	Z	[	]	^	
E		C	L	R	S	T	U	V	W	X	Y	Z	[	]	~	
F		D	M	R	S	T	U	V	W	X	Y	Z	[	]	^	

LITHUA1 (Lithuanian 1)

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4	♦	2	B	R	S	T	U	V	W	X	Y	Z	[	]	~	
5	♣	3	C	R	S	T	U	V	W	X	Y	Z	[	]	^	
6	♠	4	D	R	S	T	U	V	W	X	Y	Z	[	]	~	
7		5	E	R	S	T	U	V	W	X	Y	Z	[	]	^	
8		6	F	R	S	T	U	V	W	X	Y	Z	[	]	~	
9		7	G	R	S	T	U	V	W	X	Y	Z	[	]	^	
A		8	H	R	S	T	U	V	W	X	Y	Z	[	]	~	
B		9	I	R	S	T	U	V	W	X	Y	Z	[	]	^	
C		A	J	R	S	T	U	V	W	X	Y	Z	[	]	~	
D		B	K	R	S	T	U	V	W	X	Y	Z	[	]	^	
E		C	L	R	S	T	U	V	W	X	Y	Z	[	]	~	
F		D	M	R	S	T	U	V	W	X	Y	Z	[	]	^	

LITHUA2 (Lithuanian 2)

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3	♥	1	A	B	C	D	E	F	G	H	I	J	K	L	M	N
4	♦	2	B	R	S	T	U	V	W	X	Y	Z	[	]	~	
5	♣	3	C	R	S	T	U	V	W	X	Y	Z	[	]	^	
6	♠	4	D	R	S	T	U	V	W	X	Y	Z	[	]	~	
7		5	E	R	S	T	U	V	W	X	Y	Z	[	]	^	
8		6	F	R	S	T	U	V	W	X	Y	Z	[	]	~	
9		7	G	R	S	T	U	V	W	X	Y	Z	[	]	^	
A		8	H	R	S	T	U	V	W	X	Y	Z	[	]	~	
B		9	I	R	S	T	U	V	W	X	Y	Z	[	]	^	
C		A	J	R	S	T	U	V	W	X	Y	Z	[	]	~	
D		B	K	R	S	T	U	V	W	X	Y	Z	[	]	^	
E		C	L	R	S	T	U	V	W	X	Y	Z	[	]	~	
F		D	M	R	S	T	U	V	W	X	Y	Z	[	]	^	

MIK

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4		~	^	_	`	a	b	c	d	e	f	g	h	i	j	k
5		`	r	q	r	s	t	u	v	w	x	y	z	{	}	~
6		А	Б	В	Г	Д	Е	Ж	З	И	Й	К	Л	М	Н	О
7		Р	С	Т	У	Ф	Х	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю
8		а	б	в	г	д	е	ж	з	и	й	к	л	м	н	о
9		р	с	т	у	ф	х	ц	ч	ш	щ	ъ	ы	ь	э	ю
A		Л	л	Л	л	Л	л	Л	л	Л	л	Л	л	Л	л	Л
B		α	β	γ	δ	ε	ζ	η	θ	ι	κ	λ	μ	ν	ξ	ο
C		±	²	³	´	µ	¶	·	¸	¹	º	»	¼	½	¾	∞
D		∑	∏	∫	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞
E		∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞
F		∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞

MACEDON (Macedonian)

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
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6		А	Б	В	Г	Д	Е	Ж	З	И	Й	К	Л	М	Н	О
7		Р	С	Т	У	Ф	Х	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю
8		а	б	в	г	д	е	ж	з	и	й	к	л	м	н	о
9		р	с	т	у	ф	х	ц	ч	ш	щ	ъ	ы	ь	э	ю
A		Л	л	Л	л	Л	л	Л	л	Л	л	Л	л	Л	л	Л
B		α	β	γ	δ	ε	ζ	η	θ	ι	κ	λ	μ	ν	ξ	ο
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D		∑	∏	∫	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞
E		∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞
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Character Sets

ABG

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5		`	r	q	r	s	t	u	v	w	x	y	z	{	}	~
6		А	Б	В	Г	Д	Е	Ж	З	И	Й	К	Л	М	Н	О
7		Р	С	Т	У	Ф	Х	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю
8		а	б	в	г	д	е	ж	з	и	й	к	л	м	н	о
9		р	с	т	у	ф	х	ц	ч	ш	щ	ъ	ы	ь	э	ю
A		Л	л	Л	л	Л	л	Л	л	Л	л	Л	л	Л	л	Л
B		α	β	γ	δ	ε	ζ	η	θ	ι	κ	λ	μ	ν	ξ	ο
C		±	²	³	´	µ	¶	·	¸	¹	º	»	¼	½	¾	∞
D		∑	∏	∫	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞
E		∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞
F		∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞

ABY

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6		А	Б	В	Г	Д	Е	Ж	З	И	Й	К	Л	М	Н	О
7		Р	С	Т	У	Ф	Х	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю
8		а	б	в	г	д	е	ж	з	и	й	к	л	м	н	о
9		р	с	т	у	ф	х	ц	ч	ш	щ	ъ	ы	ь	э	ю
A		Л	л	Л	л	Л	л	Л	л	Л	л	Л	л	Л	л	Л
B		α	β	γ	δ	ε	ζ	η	θ	ι	κ	λ	μ	ν	ξ	ο
C		±	²	³	´	µ	¶	·	¸	¹	º	»	¼	½	¾	∞
D		∑	∏	∫	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞
E		∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞
F		∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞

PG-MAC

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
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2		"	2	В	Г	Д	Е	Ж	З	И	Й	К	Л	М	Н	О
3	♥	"	3	С	Т	У	Ф	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю
4	♦	#	4	Д	Е	Ж	З	И	Й	К	Л	М	Н	О	П	Р
5	♣	\$	5	Е	Ж	З	И	Й	К	Л	М	Н	О	П	Р	С
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7		&	7	З	И	Й	К	Л	М	Н	О	П	Р	С	Т	У
8		'	8	И	Й	К	Л	М	Н	О	П	Р	С	Т	У	Ф
9		(	9	Й	К	Л	М	Н	О	П	Р	С	Т	У	Ф	Ц
A		*	A	К	Л	М	Н	О	П	Р	С	Т	У	Ф	Ц	Ч
B		+	B	Л	М	Н	О	П	Р	С	Т	У	Ф	Ц	Ч	Ш
C		;	C	М	Н	О	П	Р	С	Т	У	Ф	Ц	Ч	Ш	Щ
D		<	D	Н	О	П	Р	С	Т	У	Ф	Ц	Ч	Ш	Щ	Ъ
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F		>	F	П	Р	С	Т	У	Ф	Ц	Ч	Ш	Щ	Ъ	Ы	Ь
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		?		С	Т	У	Ф	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю
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				У	Ф	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю	Я	
				Ф	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю	Я		
				Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю	Я			
				Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю	Я				
				Ш	Щ	Ъ	Ы	Ь	Э	Ю	Я					
				Щ	Ъ	Ы	Ь	Э	Ю	Я						
				Ъ	Ы	Ь	Э	Ю	Я							
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ELOT927

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3	♥	"	3	Γ	Δ	Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο
4	♦	#	4	Δ	Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο	Π
5	♣	\$	5	Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο	Π	Ρ
6		%	6	Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο	Π	Ρ	Σ
7		&	7	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο	Π	Ρ	Σ	Τ
8		'	8	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο	Π	Ρ	Σ	Τ	Υ
9		(	9	Ι	Κ	Λ	Μ	Ν	Ξ	Ο	Π	Ρ	Σ	Τ	Υ	Φ
A		*	A	Κ	Λ	Μ	Ν	Ξ	Ο	Π	Ρ	Σ	Τ	Υ	Φ	Χ
B		+	B	Λ	Μ	Ν	Ξ	Ο	Π	Ρ	Σ	Τ	Υ	Φ	Χ	Ψ
C		;	C	Μ	Ν	Ξ	Ο	Π	Ρ	Σ	Τ	Υ	Φ	Χ	Ψ	Ω
D		<	D	Ν	Ξ	Ο	Π	Ρ	Σ	Τ	Υ	Φ	Χ	Ψ	Ω	Α
E		=	E	Ξ	Ο	Π	Ρ	Σ	Τ	Υ	Φ	Χ	Ψ	Ω	Α	Β
F		>	F	Ο	Π	Ρ	Σ	Τ	Υ	Φ	Χ	Ψ	Ω	Α	Β	Γ
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				Τ	Υ	Φ	Χ	Ψ	Ω	Α	Β	Γ	Δ	Ε	Ζ	Η
				Υ	Φ	Χ	Ψ	Ω	Α	Β	Γ	Δ	Ε	Ζ	Η	Θ
				Φ	Χ	Ψ	Ω	Α	Β	Γ	Δ	Ε	Ζ	Η	Θ	Ι
				Χ	Ψ	Ω	Α	Β	Γ	Δ	Ε	Ζ	Η	Θ	Ι	Κ
				Ψ	Ω	Α	Β	Γ	Δ	Ε	Ζ	Η	Θ	Ι	Κ	Λ
				Ω	Α	Β	Γ	Δ	Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ
				Α	Β	Γ	Δ	Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν
				Β	Γ	Δ	Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ
				Γ	Δ	Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο
				Δ	Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο	Π
				Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο	Π	Ρ
				Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο	Π	Ρ	Σ
				Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο	Π	Ρ	Σ	Τ
				Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο	Π	Ρ	Σ	Τ	Υ
				Ι	Κ	Λ	Μ	Ν	Ξ	Ο	Π	Ρ	Σ	Τ	Υ	Φ
				Κ	Λ	Μ	Ν	Ξ	Ο	Π	Ρ	Σ	Τ	Υ	Φ	Χ
				Λ	Μ	Ν	Ξ	Ο	Π	Ρ	Σ	Τ	Υ	Φ	Χ	Ψ
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				Ν	Ξ	Ο	Π	Ρ	Σ	Τ	Υ	Φ	Χ	Ψ	Ω	Α
				Ξ	Ο	Π	Ρ	Σ	Τ	Υ	Φ	Χ	Ψ	Ω	Α	Β
				Ο	Π	Ρ	Σ	Τ	Υ	Φ	Χ	Ψ	Ω	Α	Β	Γ
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				Ρ	Σ	Τ	Υ	Φ	Χ	Ψ	Ω	Α	Β	Γ	Δ	Ε
				Σ	Τ	Υ	Φ	Χ	Ψ	Ω	Α	Β	Γ	Δ	Ε	Ζ
				Τ	Υ	Φ	Χ	Ψ	Ω	Α	Β	Γ	Δ	Ε	Ζ	Η
				Υ	Φ	Χ	Ψ	Ω	Α	Β	Γ	Δ	Ε	Ζ	Η	Θ
				Φ	Χ	Ψ	Ω	Α	Β	Γ	Δ	Ε	Ζ	Η	Θ	Ι
				Χ	Ψ	Ω	Α	Β	Γ	Δ	Ε	Ζ	Η	Θ	Ι	Κ
				Ψ	Ω	Α	Β	Γ	Δ	Ε	Ζ	Η	Θ	Ι	Κ	Λ
				Ω	Α	Β	Γ	Δ	Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ
				Α	Β	Γ	Δ	Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν
				Β	Γ	Δ	Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ
				Γ	Δ	Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο
				Δ	Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο	Π
				Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο	Π	Ρ
				Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο	Π	Ρ	Σ
				Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο	Π	Ρ	Σ	Τ
				Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο	Π	Ρ	Σ	Τ	Υ
				Ι	Κ	Λ	Μ	Ν	Ξ	Ο	Π	Ρ	Σ	Τ	Υ	Φ
				Κ	Λ	Μ	Ν	Ξ	Ο	Π	Ρ	Σ	Τ	Υ	Φ	Χ
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				Μ	Ν	Ξ	Ο	Π	Ρ	Σ	Τ	Υ	Φ	Χ	Ψ	Ω
				Ν	Ξ	Ο	Π	Ρ	Σ	Τ	Υ	Φ	Χ	Ψ	Ω	Α
				Ξ	Ο	Π	Ρ	Σ	Τ	Υ	Φ	Χ	Ψ	Ω	Α	Β
				Ο	Π	Ρ	Σ	Τ	Υ	Φ	Χ	Ψ	Ω	Α	Β	Γ
				Π	Ρ	Σ	Τ	Υ	Φ	Χ	Ψ	Ω	Α	Β	Γ	Δ
				Ρ	Σ	Τ	Υ	Φ	Χ	Ψ	Ω	Α	Β	Γ	Δ	Ε
				Σ	Τ	Υ	Φ	Χ	Ψ	Ω	Α	Β	Γ	Δ	Ε	Ζ
				Τ	Υ	Φ	Χ	Ψ	Ω	Α	Β	Γ	Δ	Ε	Ζ	Η
				Υ	Φ	Χ	Ψ	Ω	Α	Β	Γ	Δ	Ε	Ζ	Η	Θ
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PAGE862

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
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B		Ê	Ë	Ì	Í	Î	Ï	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù
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E		«	»	«	»	«	»	«	»	«	»	«	»	«	»	«
F		␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣

HBR OLD

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
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8		~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
9		Ç	ù	é	à	â	ä	ç	è	ë	ì	í	î	ï	À	Á
A		Ê	Ë	Ì	Í	Î	Ï	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù
B		Ú	Û	Ü	Ý	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ
C		á	í	ó	ú	ñ	Ñ	ã	õ	õ	ç	è	ë	ì	í	î
D		«	»	«	»	«	»	«	»	«	»	«	»	«	»	«
E		␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣
F		␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣

HBR DEC

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
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A		Ê	Ë	Ì	Í	Î	Ï	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù
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C		á	í	ó	ú	ñ	Ñ	ã	õ	õ	ç	è	ë	ì	í	î
D		«	»	«	»	«	»	«	»	«	»	«	»	«	»	«
E		␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣
F		␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣

ISO-TUK

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0																
1		!	"	#	\$	%	&	'	(	)	*	+	,	<	>	/?
2	♥															
3	♦															
4	♣															
5	♠															
6		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E
7		@	P	Q	R	S	T	U	V	W	X	Y	Z	[	]	^
8		~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
9		Ç	ù	é	à	â	ä	ç	è	ë	ì	í	î	ï	À	Á
A		Ê	Ë	Ì	Í	Î	Ï	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù
B		Ú	Û	Ü	Ý	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ
C		á	í	ó	ú	ñ	Ñ	ã	õ	õ	ç	è	ë	ì	í	î
D		«	»	«	»	«	»	«	»	«	»	«	»	«	»	«
E		␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣
F		␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣	␣

LATIN-9

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0																
1		!	1	A	Q	P	~	p			°	À	Á	Â	Ã	ä
2		"	2	B	R	R	a	q			±	Å	Ä	Å	ä	å
3		#	3	C	S	S	b	r			²	Å	Ä	Å	ä	å
4	♥	\$	4	D	T	T	c	s			³	Å	Ä	Å	ä	å
5	♦	%	5	E	U	U	d	e			¸	Å	Ä	Å	ä	å
6	♣	&	6	F	V	V	e	f			¸	Å	Ä	Å	ä	å
7		'	7	G	W	W	g	w			¸	Å	Ä	Å	ä	å
8		(	8	H	X	X	h	x			¸	Å	Ä	Å	ä	å
9		)	9	I	Y	Y	i	y			¸	Å	Ä	Å	ä	å
A		*	:	J	Z	Z	j	z			¸	Å	Ä	Å	ä	å
B		+	;	K	[	[	k	{			¸	Å	Ä	Å	ä	å
C		,	<	L	\	\	l				¸	Å	Ä	Å	ä	å
D		-	=	M	]	]m	n	~			¸	Å	Ä	Å	ä	å
E		.	>	N	^	^	n	~			¸	Å	Ä	Å	ä	å
F		/	?	O	_	_	o	~			¸	Å	Ä	Å	ä	å

RUSCII

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0																
1		!	1	A	Q	P	~	p	Р	Р	а	а	а	а	а	а
2		"	2	B	R	R	a	q	Б	Б	б	б	б	б	б	б
3		#	3	C	S	S	b	r	С	С	с	с	с	с	с	с
4	♥	\$	4	D	T	T	c	s	Д	Д	д	д	д	д	д	д
5	♦	%	5	E	U	U	e	f	Е	Е	е	е	е	е	е	е
6	♣	&	6	F	V	V	f	v	Ф	Ф	ф	ф	ф	ф	ф	ф
7		'	7	G	W	W	g	w	Ц	Ц	ц	ц	ц	ц	ц	ц
8		(	8	H	X	X	h	x	Ч	Ч	ч	ч	ч	ч	ч	ч
9		)	9	I	Y	Y	i	y	Ш	Ш	ш	ш	ш	ш	ш	ш
A		*	:	J	Z	Z	j	z	Щ	Щ	щ	щ	щ	щ	щ	щ
B		+	;	K	[	[	k	{	Ъ	Ъ	ъ	ъ	ъ	ъ	ъ	ъ
C		,	<	L	\	\	l		Ы	Ы	ы	ы	ы	ы	ы	ы
D		-	=	M	]m	]m	n	~	Ь	Ь	ь	ь	ь	ь	ь	ь
E		.	>	N	^	^	n	~	Э	Э	э	э	э	э	э	э
F		/	?	O	_	_	o	~	Ю	Ю	ю	ю	ю	ю	ю	ю

**NATIONAL CHARACTER SETS (DPL24C PLUS AND IBM XL24E EMULATION)**

The following character sets differ from those of Code Page 437 (USA), available in the DPL24C PLUS command set and the IBM Proprinter XL24E emulation.

**FRENCH (French)**

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0					à	â	ä	å	ç	é	ê	ë	ì	í	î	ï
1		!	"	#	\$	%	&	'	(	)	*	+	,	<	=	>
2		!	"	#	\$	%	&	'	(	)	*	+	,	<	=	>
3	♥	♦	♠	♣												
4	♥	♦	♠	♣												
5	♥	♦	♠	♣												
6	♥	♦	♠	♣												
7																
8																
9																
A																
B																
C																
D																
E																
F																

**ITALIAN (Italian)**

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0					à	â	ä	å	ç	é	ê	ë	ì	í	î	ï
1		!	"	#	\$	%	&	'	(	)	*	+	,	<	=	>
2		!	"	#	\$	%	&	'	(	)	*	+	,	<	=	>
3	♥	♦	♠	♣												
4	♥	♦	♠	♣												
5	♥	♦	♠	♣												
6	♥	♦	♠	♣												
7																
8																
9																
A																
B																
C																
D																
E																
F																

**SPANISH (Spanish)**

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0					à	â	ä	å	ç	é	ê	ë	ì	í	î	ï
1		!	"	#	\$	%	&	'	(	)	*	+	,	<	=	>
2		!	"	#	\$	%	&	'	(	)	*	+	,	<	=	>
3	♥	♦	♠	♣												
4	♥	♦	♠	♣												
5	♥	♦	♠	♣												
6	♥	♦	♠	♣												
7																
8																
9																
A																
B																
C																
D																
E																
F																

**FINNISH (Finnish)**

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0					à	â	ä	å	ç	é	ê	ë	ì	í	î	ï
1		!	"	#	\$	%	&	'	(	)	*	+	,	<	=	>
2		!	"	#	\$	%	&	'	(	)	*	+	,	<	=	>
3	♥	♦	♠	♣												
4	♥	♦	♠	♣												
5	♥	♦	♠	♣												
6	♥	♦	♠	♣												
7																
8																
9																
A																
B																
C																
D																
E																
F																

Character Sets

DANISH1/NORWEGN (Danish1/Norwegian)

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
0					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
1		!	"	#	\$	%	&	'	(	)	*	+	,	<	>	/?	
2					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
3	♥				0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
4	♦				0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
5	♣				0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
6					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
7					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
8					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
9					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
A					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
B					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
C					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
D					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
E					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
F					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z

DANISH2 (Danish2)

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
0					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
1		!	"	#	\$	%	&	'	(	)	*	+	,	<	>	/?	
2					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
3	♥				0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
4	♦				0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
5	♣				0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
6					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
7					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
8					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
9					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
A					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
B					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
C					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
D					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
E					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
F					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z

NATIONAL CHARACTER SETS (ESC/P2 EMULATION)

The following character sets differ from the graphics character sets available in the Epson ESC/P2 emulation.

DANISH1 (Danish1)

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
0					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
1		!	"	#	\$	%	&	'	(	)	*	+	,	<	>	/?	
2					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
3					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
4					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
5					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
6					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
7					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
8					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
9					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
A					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
B					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
C					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
D					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
E					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
F					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z

SPANISH1 (Spanish1)

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
0					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
1		!	"	#	\$	%	&	'	(	)	*	+	,	<	>	/?	
2					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
3					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
4					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
5					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
6					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
7					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
8					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
9					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
A					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
B					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
C					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
D					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
E					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z
F					0	É	Þ	Q	R	S	T	U	V	W	X	Y	Z

ITALIAN (Italian)

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		@	P	ù	p	Ç	Á	À	È	É	Ì	Í	Î	Ï	Ï	Ï
1	!	1	Q	à	q	Ç	Á	À	È	É	Ì	Í	Î	Ï	Ï	Ï
2	"	2	R	á	r	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
3	#	3	C	â	s	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
4	\$	4	D	ã	t	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
5	%	5	E	ä	u	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
6	&	6	F	å	v	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
7	'	7	G	æ	w	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
8	(	8	H	ç	x	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
9	)	9	I	è	y	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
A	*	:	J	é	z	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
B	+	;	K	ê	¸	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
C	<	<	L	ë	¸	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
D	=	=	M	ì	¸	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
E	>	>	N	í	¸	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
F	/?	/?	O	î	¸	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï

SPANISH2 (Spanish2)

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		Á	P	à	p	Ç	Á	À	È	É	Ì	Í	Î	Ï	Ï	Ï
1	!	1	R	á	q	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
2	"	2	C	â	r	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
3	#	3	D	ã	s	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
4	\$	4	E	ä	t	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
5	%	5	F	å	u	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
6	&	6	G	æ	v	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
7	'	7	H	ç	w	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
8	(	8	I	è	x	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
9	)	9	J	é	y	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
A	*	:	K	ê	z	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
B	+	;	L	ë	¸	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
C	<	<	M	ì	¸	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
D	=	=	N	í	¸	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
E	>	>	O	î	¸	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
F	/?	/?		ó	¸	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï

JAPAN (Japanese)

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		Á	P	à	p	Ç	Á	À	È	É	Ì	Í	Î	Ï	Ï	Ï
1	!	1	R	á	q	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
2	"	2	C	â	r	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
3	#	3	D	ã	s	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
4	\$	4	E	ä	t	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
5	%	5	F	å	u	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
6	&	6	G	æ	v	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
7	'	7	H	ç	w	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
8	(	8	I	è	x	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
9	)	9	J	é	y	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
A	*	:	K	ê	z	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
B	+	;	L	ë	¸	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
C	<	<	M	ì	¸	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
D	=	=	N	í	¸	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
E	>	>	O	î	¸	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
F	/?	/?		ó	¸	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï

LATIN A (Latin American)

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		Á	P	à	p	Ç	Á	À	È	É	Ì	Í	Î	Ï	Ï	Ï
1	!	1	R	á	q	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
2	"	2	C	â	r	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
3	#	3	D	ã	s	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
4	\$	4	E	ä	t	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
5	%	5	F	å	u	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
6	&	6	G	æ	v	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
7	'	7	H	ç	w	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
8	(	8	I	è	x	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
9	)	9	J	é	y	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
A	*	:	K	ê	z	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
B	+	;	L	ë	¸	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
C	<	<	M	ì	¸	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
D	=	=	N	í	¸	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
E	>	>	O	î	¸	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï
F	/?	/?		ó	¸	È	É	Ì	È	É	Ì	Í	Î	Ï	Ï	Ï

Character Sets

**NORWEGN (Norwegian)**

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	é	P	é	p	ç	á	í	ó	ú	ñ	á	β	±	≡
1		1	A	Q	é	q	ü	æ	æ	ö	ö	ñ	á	β	±	≡
2		2	B	R	a	b	ü	æ	æ	ö	ö	ñ	á	β	±	≡
3		3	C	S	b	r	ü	æ	æ	ö	ö	ñ	á	β	±	≡
4		4	D	T	c	s	ü	æ	æ	ö	ö	ñ	á	β	±	≡
5	\$	5	E	U	d	t	ü	æ	æ	ö	ö	ñ	á	β	±	≡
6	%	6	F	V	e	u	ü	æ	æ	ö	ö	ñ	á	β	±	≡
7	&	7	G	W	f	v	ü	æ	æ	ö	ö	ñ	á	β	±	≡
8	'	8	H	X	g	w	ü	æ	æ	ö	ö	ñ	á	β	±	≡
9	(	9	I	Y	h	x	ü	æ	æ	ö	ö	ñ	á	β	±	≡
A	*	A	J	Z	i	y	ü	æ	æ	ö	ö	ñ	á	β	±	≡
B	+	B	K	[	j	z	ü	æ	æ	ö	ö	ñ	á	β	±	≡
C	<	C	L	]	k	[	ü	æ	æ	ö	ö	ñ	á	β	±	≡
D	=	D	M	^	l	]	ü	æ	æ	ö	ö	ñ	á	β	±	≡
E	>	E	N	~	m	^	ü	æ	æ	ö	ö	ñ	á	β	±	≡
F	/	F	O	_	n	~	ü	æ	æ	ö	ö	ñ	á	β	±	≡

**FRENCH (French)**

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	à	P	à	p	ç	á	í	ó	ú	ñ	á	β	±	≡
1	!	1	á	Q	á	q	ü	æ	æ	ö	ö	ñ	á	β	±	≡
2	"	2	B	R	a	b	ü	æ	æ	ö	ö	ñ	á	β	±	≡
3	#	3	C	S	b	r	ü	æ	æ	ö	ö	ñ	á	β	±	≡
4	\$	4	D	T	c	s	ü	æ	æ	ö	ö	ñ	á	β	±	≡
5	%	5	E	U	d	t	ü	æ	æ	ö	ö	ñ	á	β	±	≡
6	&	6	F	V	e	u	ü	æ	æ	ö	ö	ñ	á	β	±	≡
7	'	7	G	W	f	v	ü	æ	æ	ö	ö	ñ	á	β	±	≡
8	(	8	H	X	g	w	ü	æ	æ	ö	ö	ñ	á	β	±	≡
9	)	9	I	Y	h	x	ü	æ	æ	ö	ö	ñ	á	β	±	≡
A	*	A	J	Z	i	y	ü	æ	æ	ö	ö	ñ	á	β	±	≡
B	+	B	K	[	j	z	ü	æ	æ	ö	ö	ñ	á	β	±	≡
C	<	C	L	]	k	[	ü	æ	æ	ö	ö	ñ	á	β	±	≡
D	=	D	M	^	l	]	ü	æ	æ	ö	ö	ñ	á	β	±	≡
E	>	E	N	~	m	^	ü	æ	æ	ö	ö	ñ	á	β	±	≡
F	/	F	O	_	n	~	ü	æ	æ	ö	ö	ñ	á	β	±	≡

**DANISH2 (Danish2)**

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	é	P	é	p	ç	á	í	ó	ú	ñ	á	β	±	≡
1	!	1	A	Q	é	q	ü	æ	æ	ö	ö	ñ	á	β	±	≡
2	"	2	B	R	a	b	ü	æ	æ	ö	ö	ñ	á	β	±	≡
3	#	3	C	S	b	r	ü	æ	æ	ö	ö	ñ	á	β	±	≡
4	\$	4	D	T	c	s	ü	æ	æ	ö	ö	ñ	á	β	±	≡
5	%	5	E	U	d	t	ü	æ	æ	ö	ö	ñ	á	β	±	≡
6	&	6	F	V	e	u	ü	æ	æ	ö	ö	ñ	á	β	±	≡
7	'	7	G	W	f	v	ü	æ	æ	ö	ö	ñ	á	β	±	≡
8	(	8	H	X	g	w	ü	æ	æ	ö	ö	ñ	á	β	±	≡
9	)	9	I	Y	h	x	ü	æ	æ	ö	ö	ñ	á	β	±	≡
A	*	A	J	Z	i	y	ü	æ	æ	ö	ö	ñ	á	β	±	≡
B	+	B	K	[	j	z	ü	æ	æ	ö	ö	ñ	á	β	±	≡
C	<	C	L	]	k	[	ü	æ	æ	ö	ö	ñ	á	β	±	≡
D	=	D	M	^	l	]	ü	æ	æ	ö	ö	ñ	á	β	±	≡
E	>	E	N	~	m	^	ü	æ	æ	ö	ö	ñ	á	β	±	≡
F	/	F	O	_	n	~	ü	æ	æ	ö	ö	ñ	á	β	±	≡

**KOREA (Korea)**

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	à	P	à	p	ç	á	í	ó	ú	ñ	á	β	±	≡
1	!	1	á	Q	á	q	ü	æ	æ	ö	ö	ñ	á	β	±	≡
2	"	2	B	R	a	b	ü	æ	æ	ö	ö	ñ	á	β	±	≡
3	#	3	C	S	b	r	ü	æ	æ	ö	ö	ñ	á	β	±	≡
4	\$	4	D	T	c	s	ü	æ	æ	ö	ö	ñ	á	β	±	≡
5	%	5	E	U	d	t	ü	æ	æ	ö	ö	ñ	á	β	±	≡
6	&	6	F	V	e	u	ü	æ	æ	ö	ö	ñ	á	β	±	≡
7	'	7	G	W	f	v	ü	æ	æ	ö	ö	ñ	á	β	±	≡
8	(	8	H	X	g	w	ü	æ	æ	ö	ö	ñ	á	β	±	≡
9	)	9	I	Y	h	x	ü	æ	æ	ö	ö	ñ	á	β	±	≡
A	*	A	J	Z	i	y	ü	æ	æ	ö	ö	ñ	á	β	±	≡
B	+	B	K	[	j	z	ü	æ	æ	ö	ö	ñ	á	β	±	≡
C	<	C	L	]	k	[	ü	æ	æ	ö	ö	ñ	á	β	±	≡
D	=	D	M	^	l	]	ü	æ	æ	ö	ö	ñ	á	β	±	≡
E	>	E	N	~	m	^	ü	æ	æ	ö	ö	ñ	á	β	±	≡
F	/	F	O	_	n	~	ü	æ	æ	ö	ö	ñ	á	β	±	≡

**LEGAL (Legal)**

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0																
1		!	"	#	\$	%	&	'	(	)	*	+	,	-	=	>
2		!	"	#	\$	%	&	'	(	)	*	+	,	-	=	>
3		!	"	#	\$	%	&	'	(	)	*	+	,	-	=	>
4		!	"	#	\$	%	&	'	(	)	*	+	,	-	=	>
5		!	"	#	\$	%	&	'	(	)	*	+	,	-	=	>
6		!	"	#	\$	%	&	'	(	)	*	+	,	-	=	>
7		!	"	#	\$	%	&	'	(	)	*	+	,	-	=	>
8		!	"	#	\$	%	&	'	(	)	*	+	,	-	=	>
9		!	"	#	\$	%	&	'	(	)	*	+	,	-	=	>
A		!	"	#	\$	%	&	'	(	)	*	+	,	-	=	>
B		!	"	#	\$	%	&	'	(	)	*	+	,	-	=	>
C		!	"	#	\$	%	&	'	(	)	*	+	,	-	=	>
D		!	"	#	\$	%	&	'	(	)	*	+	,	-	=	>
E		!	"	#	\$	%	&	'	(	)	*	+	,	-	=	>
F		!	"	#	\$	%	&	'	(	)	*	+	,	-	=	>

**NATIONAL CHARACTER SETS AND SUPPORTED RESIDENT FONTS (ALL EMULATIONS)**

In all emulations, this printer supports 50 national character sets for characters and symbols specific to different languages. Some national character sets, however, do not have some characters and symbols and may not be usable, depending on resident fonts. The following tables show which of the resident fonts are supported for each national character set:

Resident font		OCR-A	OCR-B	H-draft***	Correspondence	Nimbus Sans **	Timeless **	Courier scalable***	Pica 10	Bold PS	Draft	Compress	Elite 12	Courier 10
National character set	Name in setup menu													
USA *	USA	√	√	√	√	√	√	√	√	√	√	√	√	√
United Kingdom	UK	√	√	√	√	√	√	√	√	√	√	√	√	√
German	GERMAN	√	√	√	√	√	√	√	√	√	√	√	√	√

(Continued on the next page)

- \* USA is the same as Code Page 437.
- \*\* These are scalable and provided with upright, italic, and bold as resident fonts.
- \*\*\* H-draft stands for high-speed draft.
- √: Supported



Resident font		Courier 10	Elite 12	Compress	Draft	Bold PS	Pica 10	Courier scalable**	Timeless **	Nimbus Sans **	Correspondence	H-draft***	OCR-B	OCR-A
National character set	Name in setup menu													
Swedish	SWEDISH	√	√	√	√	√	√	√	√	√	√	√	√	√
ISO 8859-1	ISO8859	√	√	√	√	√	√	√	√	√	√	√	√	√
ECMA94	ECMA94	√	√	√	√	√	√	√	√	√	√	√	√	√
Code Page 437 *	PAGE437	√	√	√	√	√	√	√	√	√	√	√	√	√
Code Page 850	PAGE850	√	√	√	√	√	√	√	√	√	√	√	√	√
Code Page 852	PAGE852	√	√	√	√	√	√	√	√	√	√	√	√	√
Code two-Pass	PAGE852-T	√	√	√	√	√	√	√	√	√	√	√	√	√
Code Page 855	PAGE855	√	√	√	√			√	√	√				
Code Page 860	PAGE860	√	√	√	√	√	√	√	√	√	√	√	√	√
Code Page 863	PAGE863	√	√	√	√	√	√	√	√	√	√	√	√	√
Code Page 865	PAGE865	√	√	√	√	√	√	√	√	√	√	√	√	√
Code Page 866	PAGE866	√	√	√	√			√	√	√				
Hungarian	HUNGARY	√	√	√	√	√	√	√	√	√	√	√	√	√
Hungarian two-pass	HUNG-T	√	√	√	√	√	√	√	√	√	√	√	√	√
Slovenian	SLOV	√	√	√	√	√	√	√	√	√	√	√	√	√
Slovenian two-pass	SLOV-T	√	√	√	√	√	√	√	√	√	√	√	√	√
Polish	POLISH	√	√	√	√	√	√	√	√	√	√	√	√	√
Polish two-pass	POLSH-T	√	√	√	√	√	√	√	√	√	√	√	√	√
Mazovian	MAZOWIA	√	√	√	√	√	√	√	√	√	√	√	√	√
Mazovian two-pass	MAZOW-T	√	√	√	√	√	√	√	√	√	√	√	√	√
Latin 2	LATIN2	√	√	√	√	√	√	√	√	√	√	√	√	√
Latin 2 two-pass	LATIN2-T	√	√	√	√	√	√	√	√	√	√	√	√	√

(Continued on the next page)

- \* USA is the same as Code Page 437.
- \*\* These are scalable and provided with upright, italic, and bold as resident fonts.
- \*\*\* H-draft stands for high-speed draft.
- √: Supported

Resident font		Courier 10	Elite 12	Compress	Draft	Bold PS	Pica 10	Courier scalable**	Timeless **	Nimbus Sans **	Correspondence	H-draft***	OCR-B	OCR-A
National character set	Name in setup menu													
Kamenicky	KAMENIC	√	√	√	√	√	√	√	√	√	√	√	√	√
Kamenicky two-pass	KAMEN-T	√	√	√	√	√	√	√	√	√	√	√	√	√
Turkish	TURKY	√	√	√	√	√	√	√	√	√	√	√	√	√
Turkish two-pass	TURKY-T	√	√	√	√	√	√	√	√	√	√	√	√	√
Cyrillic	CYRILIC	√	√	√	√			√	√	√				
IBM 437	IBM437	√	√	√	√			√	√	√			√	
IBM 851	IBM851	√	√	√	√			√	√	√			√	
ELOT 928	ELOT928	√	√	√	√			√	√	√			√	
Code Page DHN	PG-DHN	√	√	√	√	√	√	√	√	√	√	√	√	√
Latin Polish	LATIN-P	√	√	√	√	√	√	√	√	√	√	√	√	√
ISO Latin	ISO-LTN	√	√	√	√	√	√	√	√	√	√	√	√	√
Lithuanian 1	LITHUA1	√	√	√	√			√	√	√	√	√	√	√
Lithuanian 2	LITHUA2	√	√	√	√			√	√	√				
MIK	MIK	√	√	√	√			√	√	√				
Macedonian	MACEDON	√	√	√	√			√	√	√				
ABG	ABG	√	√	√	√			√	√	√				
ABY	ABY	√	√	√	√			√	√	√				
Code Page MAC	PG-MAC	√	√	√	√			√	√	√				
ELOT927	ELOT927	√	√	√	√			√	√	√				
DEC Greek	DEC GR	√	√	√	√			√	√	√				
Greek 11	GREEK 11	√	√	√	√			√	√	√				
Code Page 862	PG862	√	√	√	√	√	√							
Hebrew Old	HBR-OLD	√	√	√	√	√	√							
Hebrew DEC	HBR-DEC	√	√	√	√	√	√							
ISO-Turkish	ISO-TUK	√	√	√	√	√	√	√	√	√	√	√	√	√
RUSCII		√	√	√	√	√	√	√	√	√			√	
LATIN-9		√	√	√	√	√	√	√	√	√	√	√	√	√

\* USA is the same as Code Page 437.

\*\* These are scalable and provided with upright, italic, and bold as resident fonts.

\*\*\* H-draft stands for high-speed draft.

√: Supported

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## RESIDENT FONTS

This appendix provides print samples of the printer's nineteen resident fonts.



### COURIER 10

The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.

### PRESTIGE ELITE 12

The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.

### DRAFT 12

The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.

### COMPRESSED

The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.

### PICA 10

The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.

### CORRESPONDENCE 10

The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.

### HIGH-SPEED DRAFT 12

The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.

### BOLDFACE PS

The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.

### OCR-B 10

The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.

### OCR-A 10

The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.

**COURIER (SCALABLE)**

- Normal**      The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.
- Bold**        **The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.**
- Italic**      *The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.*

**NIMBUS SANS®  
(SCALABLE)**

- Normal**      The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.
- Bold**        **The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.**
- Italic**      *The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.*

**TIMELESS (SCALABLE)**

- Normal**      The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.
- Bold**        **The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.**
- Italic**      *The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.*

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## GLOSSARY OF TERMS

<b>A4 size</b>	A standard paper size used in Japan and other countries. Paper is 210 x 295 mm (8.25 x 11.6 inches).
<b>Application software</b>	<b>SOFTWARE PROGRAMS THAT PERFORM TASKS ON A COMPUTER. SUCH PROGRAMS INCLUDE WORD PROCESSING, DATABASE MANAGEMENT, AND ACCOUNTING, FOR EXAMPLE.</b>
<b>ASCII</b>	The acronym for American National Standard Code for Information Interchange. ASCII is a set of 256 codes (numbered 0 to 255) used to communicate information between a computer and another device such as a printer.
<b>Baud rate</b>	The speed, in bits per second, at which data is transmitted to a device such as a printer. Baud rates apply to serial data only. 1200 baud equals approximately 120 characters per second.
<b>Bidirectional printing</b>	Alternate printing of lines from left to right and right to left. Bidirectional printing is faster than unidirectional printing because there are no carriage returns.
<b>Bit</b>	The smallest unit of information in computer memory. A bit is a single digit, either a 1 or a 0, in the binary numbering system. Eight bits equal one byte.
<b>Buffer</b>	A storage area for data in the printer or computer. The printer's buffer consists of a print buffer and a download buffer. The print buffer holds data to be printed. The download buffer holds downloaded data such as download (soft) fonts.
<b>Byte</b>	A byte consists of eight bits that constitute one symbol. A byte represents a single character, such as number, letter, or special control character.

<b>Carriage return (CR)</b>	The return of the print head carriage to the beginning of the next line.
<b>Centronics interface</b>	A type of parallel interface. See Parallel interface.
<b>Column</b>	A vertical section on a printed page. This printer can print 80-column pages at 10-pitch (10 characters per inch).
<b>Command set</b>	A set of print and format commands used to control the printer. Each printer has its own resident command sets embedded in the printer firmware. These command sets are actuated by codes sent from the host computer.
<b>Condensed print</b>	Print that uses “condensed” characters. Condensed characters are narrower than regular characters. Using condensed print increases the number of characters per line.
<b>Continuous forms</b>	Connected, fan-folded sheets of paper that are fed into the printer using forms tractors. The fan-folded sheets are separated by tearing them at their perforations.
<b>Control panel</b>	A panel containing the printer indicators and buttons. The control panel is used to control printer operations, such as loading paper, selecting print features, and changing setup options.
<b>cpi</b>	Characters per horizontal inch. Also referred to as pitch. For example, 12-pitch means 12 cpi.
<b>cps</b>	Characters per second.
<b>Cut sheets</b>	See Single sheets.
<b>Defaults</b>	Settings selected automatically by the printer when power is turned on. Enter setup mode to change the defaults to ensure compatibility with your system hardware and software.
<b>Dot matrix</b>	The grid used to print characters on a dot matrix printer. Each dot corresponds to a wire in the print head.

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<b>Downloading</b>	Transferring soft fonts from the computer to the printer's memory. Downloading allows you to use fonts not resident in the computer.
<b>dpi</b>	Dots per inch.
<b>Emulation</b>	A command set that allows one printer to print like another printer. This printer has three resident emulations: Fujitsu DPL24C PLUS (native command set), IBM proprinter XL24E, and Epson ESC/P2.
<b>Font</b>	A complete set of printable characters having the same size and style. For example, Courier 10 and Prestige Elite 12 are commonly used fonts.
<b>Form feed (FF)</b>	A signal to the printer to advance the paper forward one page. Form feeds can be executed either by your software or by holding down the LF/FF button on the printer control panel.
<b>Graphics printing</b>	Controlling the print head wires (dots) individually to produce a picture or an image on the page.
<b>Hexadecimal</b>	A base-16 numbering system (also commonly referred to as hex numbers). Since a base-16 system requires 16 digits, numbers 0 through 9 and letters A through F are used. Expressing binary numbers in hexadecimal uses fewer digits.
<b>Hex dump</b>	A hexadecimal printout of control codes and data. Hex dumps are used to debug computer programs and to troubleshoot printer malfunctions. To print a hex dump on the printer, use the HEX-DUMP function in setup mode.
<b>Interface</b>	A connection that allows communication from one part of a system to another. For example, electrical signals are transferred between the computer and printer over an interface cable.
<b>K byte</b>	Kilobyte. 1K byte equals 1024 bytes.

<b>LAN interface</b>	An interface for the local area network that supports the use of 10Base-T and 100Base-TX cables. (The use of Category 5 or greater TX cables is supported.) The maximum cable length supported is 100 meters.
<b>Letter size</b>	A standard paper size used in the United States and other countries. Paper is 8-1/2 x 11 inches (215.9 x 279.4 mm).
<b>Line feed (LF)</b>	A signal to the printer that advances the paper forward one line. Line feeds can be executed either by your software or by pressing the LF/FF button on the printer control panel.
<b>Line spacing</b>	The vertical spacing between lines, measured in lines per inch.
<b>lpi</b>	Lines per inch. Used to measure line spacing.
<b>Monospacing</b>	Character spacing in which each printed character has the same width. Also called fixed pitch, monospacing is the opposite of proportional spacing. Typewriter or computer-printed text is typically monospaced.
<b>Nonresident font</b>	Fonts not present (resident) in the printer's permanent memory. Soft fonts and fonts on font cards are examples of nonresident fonts.
<b>Normal mode</b>	One of the printer's two operating modes. In normal mode, the control panel can be used to perform everyday printer operations, such as loading and unloading paper, feeding paper, and selecting print features. See also Setup mode.
<b>Offline</b>	When the printer is offline, it receives commands from the printer control panel rather than from the computer. "Offline" indicates that the printer is not "online" with the computer.
<b>Online</b>	When the printer is online, it is ready to receive or is receiving commands from the computer. The printer must be online to print.
<b>Parallel interface</b>	A standard computer interface. Information is transferred between devices over separate wires, allowing all of the bits that make up the character to be transmitted simultaneously (in parallel).



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<b>Park position</b>	The position in which continuous forms paper is retracted or “parked” on the rear forms tractors. When continuous forms paper is loaded, it moves forward from the park position to the platen.
<b>Permanent memory</b>	Memory that retains information even when power is turned off. The printer’s permanent memory retains the default settings specified using the printer setup mode.
<b>Pitch</b>	Characters per horizontal inch (cpi).
<b>Platen</b>	A hard rubber cylinder that moves paper forward during printing.
<b>Proportional spacing</b>	Character spacing in which wide characters occupy more space than do narrow characters. For example, characters such as “W” or “M” occupy more horizontal space than do characters such as “i” or “l.” Many soft fonts are proportionally spaced. Sometimes designated PS, proportional spacing is the opposite of monospacing.
<b>Protocol</b>	A set of instructions that control how data is transmitted between devices such as a computer and printer.
<b>Rear feed</b>	In rear feed, paper is fed from the rear of the printer. The forms tractor unit pushes paper into the printer.
<b>Resident fonts</b>	Fonts present (resident) in the printer’s permanent memory. For this printer, the resident fonts are Courier 10, Prestige Elite 12, Pica 10, OCR-B 10, OSR-A 10, Boldface PS, Compressed font, Correspondence, Draft, and High-speed Draft. Unlike soft fonts, resident fonts can always be accessed.
<b>RS-232C interface</b>	A type of serial interface. See Serial interface.
<b>Self-test</b>	A test that determines whether the printer is working correctly. Test pages are printed to show print quality and verify whether all characters print. The self-test only tests the printer. It does not test how the computer works with the printer.

<b>Serial interface</b>	A standard computer interface. Information is transferred between devices over a single wire (although other wires are used for control). A serial interface can use an interface cable greater than 3 meters (10 feet). A long cable is often necessary in networking environments, where the printer may be shared.
<b>Setup mode</b>	One of the printer's two operating modes. In setup mode, the controlpanel can be used to select the printer default settings, such as print features, hardware options, and top-of-form. Setup mode also provides some diagnostic functions. See also Normal mode.
<b>Shadow printing</b>	Shadow printing prints characters twice for emphasis. Characters printed the second time are shifted slightly to the right.
<b>Single sheets</b>	Single sheets are sheets of paper, envelopes, and noncontinuous multipart forms fed into the printer using the cut sheet stand. Single sheets are also called cut sheets.
<b>Soft fonts</b>	Fonts downloaded from a disk to the printer memory. Soft fonts are also referred to as downloaded fonts. Unlike resident fonts, soft fonts are available only when in the printer memory.
<b>Software</b>	Programs that control the computer and printer to perform specified tasks, such as word processing, database management, and preparation of spreadsheets. Software is sometimes referred to as application software.
<b>Top margin</b>	The total space at the top of the printed page. The top margin is the sum of the top-of-form setting, the software-specified top margin, and the printer's TOP-MRG setting.
<b>Top-of-form (TOF)</b>	The logical top of the physical page, as "understood" by the printer when loading paper. The default TOF settings are 1 inch (25.4 mm) for both cut sheets and continuous forms.

**Tractor feed**

A method for feeding continuous forms forward for printing. Holes on the sides of the forms fit over sprockets on two tractors located inside the printer. The forms are pushed for rear feeding.

**Unidirectional printing**

Printing is performed in one direction only, left to right. Unidirectional printing is slower than bidirectional printing, but the vertical alignment is more accurate. Unidirectional printing is useful when precise vertical alignment is required, as in ruled tables.

**USB interface**

A serial bus standard. An abbreviation of Universal Serial Bus. HotSwap using Plug&Play is available. The maximum cable length is five meters.

The transmission mode is 12 Mbps + 0.25% at full speed.



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## INDEX

### A

Acoustic cover ..... 2-10

Adjustments

- left margin ..... 3-6, 3-11
- paper select lever ..... 3-2, 3-3
- paper thickness lever ..... 3-2, 3-3
- paperthicknesslever ..... 2-10
- top-of-form ..... 3-7, 5-36

AREA OVER indicator ..... 4-7

ATTRIB ..... 5-18

Attributes, font ..... 5-18

### B

Back cover ..... 2-11

Bidirectional printing ..... 5-30

Bold face ..... 5-15

BUFFER ..... 5-30

Buffer size ..... 5-30

Buttons

- LF/FF ..... 3-3, 3-7, 4-2
- LOAD ..... 3-3, 3-7, 4-2
- MENU ..... 3-3, 4-2
- ONLINE ..... 2-26, 4-2
- TEAR OFF ..... 3-3, 4-2

BUZZER ..... 5-30

### C

Cables

- LAN ..... 2-20
- parallel interface ..... 2-19
- serial interface ..... 2-19
- USB ..... 2-20

Carriage return (CR) ..... 5-25

- missing ..... 7-3

Centronics parallel cable connection ..... 2-20

Change ribbon cartridge ..... 6-3

Changing hardware options ..... 5-29

CHAR-H ..... 5-18

CHAR-W ..... 5-17

Character

- enlargement ..... 5-17
- height ..... 5-18
- pitch ..... 5-17
- sets ..... 5-24
- width ..... 5-17

CHR-SET ..... 5-24

Cleaning ..... 6-1

Clear print buffer ..... 4-8

Command sets, resident ..... C-1

Compatible mode ..... D-2

Compressed font ..... 5-15

Condensed printing ..... 5-18

Connecting

- interface cable ..... 2-20
- power cord ..... 2-11

Continuous forms

- loading ..... 3-10
- placement ..... 3-9
- tearing off ..... 3-15
- unloading ..... 3-14

Control panel ..... 2-10, 3-2, 4-2

Correspondence ..... 5-15

Courier 10 ..... 5-15

CR-CODE ..... 5-25

Cursor, on print guide ..... 2-25, 5-4

Cut sheet stand ..... 2-10

- installing ..... 2-6
- loading ..... 2-13

**D**

DC1/DC3 commands ..... 5-25  
 DC3-CDE ..... 5-25  
 DEFAULT function ..... 5-28, 5-49  
 Default settings  
   factory defaults ..... 5-11  
   power-on defaults resetting ..... 5-49  
   resetting, factory defaults ..... 5-49  
 Demo pattern ..... 2-18  
 Diagnostic functions ..... 5-50  
 Download buffer ..... 5-30  
 Downloaded buffer ..... 5-30  
 Downloaded (soft) fonts ..... 4-1, 5-16  
 DPL24CPLUS  
   commands ..... C-1  
   factory defaults ..... C-15  
   selecting ..... 2-23, 5-15  
 DRAFT ..... 5-16  
 DTR protocol ..... D-9, 5-33

**E**

Ejection cover ..... 2-11  
 EMULATE ..... 2-25, 5-12, 5-15  
 Emulations  
   selecting ..... 2-23, 5-12, 5-14  
   supported ..... 2-23  
 Entering setup mode ..... 5-2  
 Envelopes, printing ..... 3-19  
 Epson ESC/P2  
   command ..... C-23  
   selecting ..... 2-23, 5-15

**F**

Factory default settings ..... C-15, 5-11  
 Feeding paper  
   form feed ..... 3-3, 3-16  
   forward micro feed ..... 3-3  
   line feed ..... 3-3, 3-16  
   problem ..... 7-4  
 FONT ..... 5-15  
 Fonts  
   attributes ..... 5-18  
   selecting ..... 5-15  
   types ..... F-1, 1-2  
 Form feed ..... 3-3, 3-16  
 Forms tractors ..... 2-11  
 Front cover ..... 2-10  
 Fujitsu DPL24CPLUS  
   selecting ..... 2-23, 5-15  
 <<FUNCTION>> menu ..... 5-3  
 Functions ..... 5-12  
   ADJUST ..... 5-35  
   CONFIG ..... 5-40  
   DEFAULT ..... 5-28  
   HARDWRE ..... 5-29  
   HEX-DUMP ..... 5-52, 7-10  
   LIST ..... 5-10  
   MENU1 ..... 5-14  
   MENU2 ..... 5-14  
   SAVE & END ..... 5-4  
   selecting ..... 5-5  
   SELF-TST ..... 5-51, 7-10  
   V-ALMNT ..... 5-55, 7-10



**N**

National character sets	
all emulations .....	E-4
DPL24C PLUS/IBM XL24E .....	E-15
ESC/P2 .....	E-16
Number of copies .....	B-3, 3-1

**O**

ON-LOAD .....	5-43
ONLINE	
button .....	2-26, 5-7
indicator .....	2-12
Online setup .....	5-62
Options, hardware	
Installing .....	81
order numbers .....	A-1
Options, setup	
adjustment .....	5-35
configuration .....	5-40
currently selected .....	5-10
hardware .....	5-29
MENU1 .....	5-14
MENU2 .....	5-14
required .....	5-12
top-of-form .....	5-39
Order number .....	A-1

**P**

Page	
length .....	5-19
PAGELG .....	5-19

## Paper

continuous forms .....	3-10
ejecting single sheets .....	3-8
feeding .....	3-16
guide .....	2-11, 3-6
length .....	3-1
loading .....	3-5, 3-10
operations .....	3-2
print area .....	B-6
select lever .....	3-2
selection .....	3-1
single sheet .....	3-5
specifications .....	B-6, 3-1
thickness .....	3-1
thickness lever .....	3-4
tips for handling .....	3-18
type,switching .....	3-17
unloading forms .....	3-14
width .....	3-1
PAPER OUT indicator .....	3-17, 4-5
Paper path	
selecting .....	3-3
Paper select lever .....	2-11, 3-2
Paper-out detection .....	4-5, 5-29
PICA 10 .....	5-15
Pitch .....	5-17
Platen .....	2-10
cleaning .....	6-3
knob .....	2-10
Power	
connector .....	2-11
cord .....	2-3, 2-11
switch .....	2-11
PPR-OUT .....	5-29
Prestige Elite 12 .....	5-15
PRF-SKP .....	5-24



- Print**
- area ..... B-6
  - buffer, clearing ..... 4-8, 5-31
  - features, selecting ..... 4-1
  - list of selected options ..... 5-10
- Print guide** ..... 2-10
- Print head** ..... 2-10
- Printer**
- control panel ..... 4-2
  - failures ..... 7-9
  - features ..... 1-1, 1-2
  - location ..... 2-1
  - normal mode ..... QR-1, 5-1
  - problems ..... 7-1
  - setup ..... 2-1
  - setup mode ..... 5-1
  - specifications ..... B-1
- Printer Driver** ..... 2-29
- Printing**
- currently selected options ..... 5-10
  - Demo pattern ..... 2-18
  - problems ..... 7-2, 7-3, 7-4
  - self-test ..... 2-14
  - start ..... 4-5
  - stop ..... 4-5
  - using software ..... 4-2
  - with parallel interface ..... 2-26
  - with serial interface ..... 2-26
- Problems**
- operating ..... 7-7
  - paper handling ..... 7-4, 7-5
  - printer failures ..... 7-1, 7-9
  - printing ..... 7-1
  - solving ..... 7-1
- Protocols, serial** ..... D-10
- PRT-DIR** ..... 5-30
- 
- Q**
- QUALITY** ..... 5-16
- Quick Reference, operation** ..... QR-1
- 
- R**
- RC Protocol** ..... D-9
- Removing printed pages** ..... 4-8
- Replacing ribbon cartridge** ..... 6-3
- Resident**
- command sets ..... C-1
  - emulations ..... 2-23, 5-15
  - fonts ..... F-1, 1-2
- Resume printing** ..... 4-5
- RGHTEND** ..... 5-26
- Ribbon cartridge**
- installing ..... 2-7
  - replacing ..... 6-3
  - ribbon subcassettes ..... 6-3
- Ribbon subcassette** ..... A-1
- Right end of page (RGHTEND)** ..... 5-26
- RS-232C (serial) interface**
- cable connection ..... 2-22
  - optional settings (setup) ..... 2-26, 5-31
  - specifications ..... D-7
- 
- S**
- Select (DC1)/Deselect (DC3) commands** ..... 5-25
- Self-test, printer** ..... 2-14
- SELF-TST** ..... 7-10
- Serial (RS-232C) interface**
- cable connection ..... 2-20
  - optional settings (setup) ..... 2-28, 5-31
  - specifications ..... D-7

- 
- Setup mode
- changing configuration options ..... 5-40
  - changing hardware options ..... 5-29
  - changing MENU1 and 2 options ..... 5-14
  - changing print position
    - adjustment options ..... 5-35
  - changing top-of-form ..... 5-39
  - DPL24C PLUS flowchart ..... 5-57
  - entering ..... 5-2
  - example ..... 5-6
  - exiting ..... 5-48
  - online ..... 5-62
  - overview of ..... 5-4
  - saving settings ..... 5-48
  - single sheet fine adjust (CUTFINE) ..... 5-36
  - summary ..... 5-7
- Setup options
- adjustment options ..... 5-35
  - Alternate Graphics Mode (AGM) ..... 5-24
  - attributes (ATTRIB) ..... 5-18
  - buffer (BUFFER) ..... 5-30
  - buzzer ON/OFF (BUZZER) ..... 5-30
  - carriage return (CR) ..... 5-25
  - character height (CHAR-H) ..... 5-18
  - character set (CHR-SET) ..... 5-24
  - character width (CHAR-W) ..... 5-17
  - detection of end of forms (CONT-PE) ..... 5-44
  - emulation (EMULATE) ..... 5-15
  - fine adjust (CNTFINE) top of forms,
    - continuous form ..... 5-36
  - fine adjust left position (CNT-LFT),
    - continuous form ..... 5-37
  - fonts (FONT) ..... 5-15
  - hardware options ..... 5-29
  - interface (INTRFCE) ..... 5-31
  - language (LANGUGE) ..... 5-21
  - left end of page (LFT-END) ..... 5-19
  - line feed (LF) ..... 5-25
  - line spacing (LINE SP) ..... 5-17
  - line spacing adjust (CUT-ADJ), single sheet ..... 5-37
  - list of selected options ..... 5-10
  - lock function of setup mode (LOCK) ..... 5-43
  - MENU1 and MENU2 options ..... 5-14
  - page length (PAGE LG) ..... 5-19
  - paper-out response (PPR-OUT) ..... 5-29
  - perforation skip (PRF-SKP) ..... 5-24
  - pitch ..... 5-17
  - print direction (PRT-DIR) ..... 5-30
  - print quality ..... 5-16
  - Select/Deselect commands (DC3-CDE) .... 5-25
  - setting of printing speed
    - change processing (SKIP-PR) ..... 5-45
  - setting of priority on TOF control
    - (TOF-CTL) ..... 5-46
  - setting of reducing backward
    - line feeds (BANDCTL) ..... 5-45
  - setting of retracting control,
    - continuous form (CUT-CTL) ..... 5-44
  - setting of the asynchronous
    - status function (STATUS) ..... 5-45
  - setting ribbon protective control,
    - continuous form ..... 5-44
  - single sheet top of form (CUT-ORG) ..... 5-36
  - status after loading paper in offline mode
    - (ON-LORD) ..... 5-43
  - tear-off (TEAROFF) ..... 5-40
  - tear-off enable time (TEAR-EN) ..... 5-41
  - tear-off position (TEARPOS) ..... 5-41
  - top margin (TOP-MRG) ..... 5-20
  - top of form (CNT-ORG), continuous form .. 5-36
  - top-of-form ..... 5-39
  - word length (WORD-LG) ..... 5-30
  - zero with a slash (ZEROFNT) ..... 5-24
  - Shadow printing ..... 5-18
  - Shipping restraint cardboard, removing ..... 2-4
  - Single sheet
    - loading ..... 3-5

Single sheets	
ejecting .....	3-8
Soft (download) fonts .....	4-1, 5-15
Software, using .....	2-26, 4-2
Specifications	
interface .....	D-1
paper .....	B-6
printer .....	B-1
Supplies .....	A-1

## T

TEAR OFF button .....	3-3
Tear-off setup options .....	5-40
Tearing off forms .....	3-15
Testing printer	
offline .....	2-13
online .....	2-26
Top margin, changing .....	5-20
TOP-MRG .....	5-20

## U

Unidirectional printing .....	5-30
Unpacking .....	2-3
USB interface	
cable connection .....	2-20
optional setting .....	5-31
specifications .....	D-11

## V

V-ALMNT function .....	7-10
Vertical character displacement	
correcting .....	7-10

## W

WIDTH .....	5-24
Word length .....	5-30
WORD-LG .....	5-30

## X

XON/XOFF protocol .....	D-10
-------------------------	------

## Z

ZEROFNT .....	5-24
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