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Command Sets

This appendix describes printer commands and their parameters.

This printer has the following two resident command sets (Emulations):

- IBM [2390+Proprinter XL24E](#)
- Epson EP2

Select the same Emulation on the printer and in your software.

TallyGenicom Matrix Printer MIP360 and IBM Proprinter 2390+XL24E Emulation Quick Reference Guide

This section describes the printer commands for the ~~MIP360 and~~ IBM ~~2390+Proprinter~~
~~XL24~~ Emulation. Asterisks in the “Function” column indicate extended commands that are not supported by the original printer.

Function	Command																														
Print Mode Control																															
Double-strike (bold) printing on	ESC G																														
Double-strike (bold) printing off	ESC H																														
Emphasized (shaded) printing on	ESC E																														
Emphasized (shaded) printing off	ESC F																														
Single-line double-width characters on	SO or ESC SO																														
Single-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><tr><th>m_3</th><th>Height</th><th>Spacing</th></tr><tr><td>0</td><td>Unchanged</td><td>Unchanged</td></tr><tr><td>1</td><td>Normal</td><td>Unchanged</td></tr><tr><td>2</td><td>Double</td><td>Unchanged</td></tr><tr><td>16</td><td>Unchanged</td><td>Single</td></tr><tr><td>17</td><td>Normal</td><td>Single</td></tr><tr><td>18</td><td>Double</td><td>Single</td></tr><tr><td>32</td><td>Unchanged</td><td>Double</td></tr><tr><td>33</td><td>Normal</td><td>Double</td></tr><tr><td>34</td><td>Double</td><td>Double</td></tr></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																													
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_4 controls character width:																															
<table><tr><th>m_4</th><th>Width</th></tr><tr><td>0</td><td>Unchanged</td></tr><tr><td>1</td><td>Normal</td></tr><tr><td>2</td><td>Double</td></tr></table>		m_4	Width	0	Unchanged	1	Normal	2	Double																						
m_4	Width																														
0	Unchanged																														
1	Normal																														
2	Double																														
Condensed characters on	SI or ESC SI																														
Subscript or superscript printing on (subscript: $n = 1$, superscript: $n = 0$)	ESC S (n)																														
Subscript and superscript printing off	ESC T																														
Underline on/off (on: $n = 1$, off: $n = 0$)	ESC - (n)																														
Overline on/off (on: $n = 1$, off: $n = 0$)	ESC _ (n)																														

Function	Command
Score select	ESC [- (n ₁) (n ₂) (m ₁) (m ₂)
n ₁ = 2, n ₂ = 0	
m ₁ selects score location:	
m ₁	Score location
0	Underscore
1	Strikethrough
2	Overscore
m ₂ selects score type:	
m ₂	Score type
0	Cancel
1	Single
2	Double

Command Sets

Function	Command
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Function	Command
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Horizontal Control

Space	SP
Backspace	BS
Carriage return	CR
Select 10cpi	DC2 :
Elite characters on	ESC :
Proportionally spaced characters on/off (on: $n = 1$, off: $n = 0$)	ESC P (n)

Vertical Control

Line feed	LF
Form feed	FF
Advance paper $n/216$ inch ($1 \leq n \leq 255$)	ESC J (n)
Advance paper $n/180$ inch (in AG mode) ($1 \leq n \leq 255$)	ESC J (n)
Set line spacing to 1/8 lines	ESC 0
Set line spacing to 7/72 inch	ESC 1
Set line spacing to $n/216$ inch ($0 \leq n \leq 255$)	ESC 3 (n)
Set line spacing to $n/180$ inch (in AG mode) ($0 \leq n \leq 255$)	ESC 3 (n)
Preset line spacing to $n/72$ inch ($1 \leq n \leq 255$)	ESC A (n)
Preset line spacing to $n/60$ inch (in AG mode) ($1 \leq n \leq 255$)	ESC A (n)
Set line spacing to 1/6 inch or to the value preset by line spacing command ESC A (n)	ESC 2
Change graphics line spacing base to 1/216 or 1/180 inch (for ESC J and ESC 3) $m_1 = 4, m_2 = 0$ $0 \leq t_1 \leq 255, 0 \leq t_2 \leq 255, t_3 = 0$ $t_4 = 180$ or 216	ESC [\ (m_1) (m_2) (t_1) ... (t_4)

Reverse line feed	ESC I
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Tabulation

Horizontal tab execution	HT
Set horizontal tabs	ESC D (n_1) ... (n_k) NUL
The values of n_1 to n_k in this command are the ASCII values of the print columns (at the current character width) at which tabs are to be set. ($1 \leq n \leq 255$) ($1 \leq k \leq 28$)	
Clear all horizontal tabs	ESC D NUL
Move print position right by $n/120$ inch ($0 \leq n_1, n_2 \leq 255$) ($n = n_1 + n_2 \times 256$)	ESC d (n_1) (n_2)

Function	Command
Vertical tab execution	VT
Set vertical tabs	ESC B (n_1) ... (n_k) NUL
The values of n_1 to n_k in this command are the ASCII values of the lines (at the current line spacing) at which tabs are to be set.	
$(1 \leq n \leq 255)$ $(1 \leq k \leq 64)$	
Clear all vertical tabs	ESC B NUL
Reset tabs to default values	ESC R
Page Formatting	
Set left margin at column n and right margin at column m ($0 \leq n, m \leq 255$)	ESC X (n) (m)
Set perforation skip by n lines ($1 \leq n \leq 255$)	ESC N (n)
Perforation skip off	ESC O
Set page length to n lines $(1 \leq n \leq 255)$ ~~$(1 \leq n \leq 255)$~~	ESC C (n)
Set page length to n inches ($1 \leq n \leq 22$)	ESC C NUL (n)
Set top of form	ESC 4
Color Selection*	
Select print color*	ESC r (n)
~~$n = 0$: Black~~	
~~1: Magenta (red)~~	
~~2: Cyan (blue)~~	
~~3: Violet~~	
~~4: Yellow~~	
~~5: Orange~~	
~~6: Green~~	
Character Set Control	
Select character set 1	ESC 7
Select character set 2	ESC 6
Print $n_1 + n_2$ X 256 characters from all-character set	ESC \ (n_1) (n_2) (<i>chars.</i>)
<i>(chars.:</i> codes of characters to print, $0 \leq \text{chars.} \leq 255)$	
Print a character from all-character set	ESC ^ (<i>char.</i>)
<i>(char.:</i> a code of character to print, $0 \leq \text{char.} \leq 255)$	

Command Sets

Function	Command
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Select code page table

ESC [T (n₁) (n₂) 0 0 (c₁) (c₂)

(0 ≤ n₁, n₂ ≤ 255) (n = n₁ + n₂ X 256)

c₁, c₂: Decimal (n₁ = 4, n₂ = 0)

c ₁	c ₂	Code page ID
0	0	Ignore command
~~0~~	~~210~~	~~Code page 210*~~
~~0~~	~~220~~	~~Code page 220*~~
1	181	Code page 437
3	82	Code page 850
3	83	Code page 851 [±]
3	84	Code page 852 [±]
<u>3</u>	<u>87</u>	<u>Code page 855</u>
3	89	Code page 857 [±]
3	90	Code page 858 ^{****}
3	92	Code page 860
3	94	Code page 862 [±]
3	95	Code page 863
<u>3</u>	<u>96</u>	<u>Code page 864</u>
3	97	Code page 865
3	98	Code page 866 [±]
<u>3</u>	<u>101</u>	<u>Code page 869</u>
<u>3</u>	<u>152</u>	<u>Code page 920</u>
<u>3</u>	<u>155</u>	<u>Code page 923**</u>
<u>40</u>	<u>197</u>	<u>Code page 437G</u>
<u>42</u>	<u>101</u>	<u>Code page 853</u>
<u>42</u>	<u>114</u>	<u>Code page USSR GOST</u>

**Code page contains Euro currency symbol

~~23~~ ~~27~~ ISO 8859-15**

Clear input buffer

CAN

Select printer

DC1

Deselect printer (ignore input)

ESC Q #

ESC Q \$

Function	Command
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Set font global ESC [1 (n₁) (n₂) (H_f) (L_f) (H_s) (L_s) (S_m) 0
(H_c) (L_c)

(0 ≤ n₁, n₂ ≤ 255) (n = n₁ + n₂ × 256)

H_f, L_f: Font global ID

H_f, L_f **Font global ID**

Normal Font Global ID for Hex (Hf Lf)					
Pitch	Courier	Prestige	Gothic	Orator	Script
10	000B	000C	0024	0005	01D4
12	01EB	01EF	018F	01CB	01D5
15	01EC	01F0	018E	01CC	01D6
17	01ED	01C9	018D	01CD	01D7
20	01EE	01CA	018C	01CE	01D8
24	011E	011F	0120	0121	0124
PS	00AB	01A4	00AE	00C6	00C8

Additional Font Global ID for Hex (Hf Lf)											
Pitch	Courier				Prestige			Gothic			
	Normal	Emph	Italic	Emph /Italic	Normal	Emph	Italic	Normal	Emph	Italic	Emph /D.strike
5	F4/F6	F5						F1	F2		F3
10	0B	2E	12	39	0C	3C		24			
12	1EB/55	6C	5C	74	1EF/56	6F	70	18F/57	6E	6D	
15	1EC/DF	D6	D7	D8	1F0/DD			18E/DE			
17.1	1ED/FF	FD			1C9/100			18D/FF			
20	1EE				1CA			18C/1119*			
24	11E				11F			120			
Prop.	AB	B8	AC	B9	A4			AE	9D	A2	

H_s, L_f, S_m: Size parameters

H_s, L_s, S_m **Size parameters**

The size parameters (Hs, Ls and Sm) specify the pitch as follows.

These size parameters are valid when font ID (Hf, Lf) is not valid.

Null data is ignored.

<u>Dec(Hs,Ls)</u>	<u>Hex (Hs,Ls)</u>	<u>Description</u>
<u>0.0 - 0.65</u>	<u>0000 - 0041</u>	<u>24 CPI Subscript</u>
<u>0.66 - 0.77</u>	<u>0042 - 004D</u>	<u>20 CPI Subscript</u>
<u>0.78 - 0.89</u>	<u>004E - 0059</u>	<u>17 CPI Normal</u>
<u>0.90 - 0.107</u>	<u>005A - 006B</u>	<u>15 CPI Normal</u>
<u>0.108 - 0.131</u>	<u>006C - 0083</u>	<u>12 CPI Normal</u>
<u>0.132 - 0.155</u>	<u>0084 - 009B</u>	<u>10 CPI Normal</u>
<u>0.156 - 0.179</u>	<u>009C-00B3</u>	<u>8.5 CPI(17 CPI double-wide)</u>
<u>0.180 - 0.215</u>	<u>00B4-00D7</u>	<u>7.5 CPI(15 CPI double-wide)</u>
<u>0.216 - 0.254</u>	<u>00D8 - 00FE</u>	<u>6 CPI (12 CPI double-wide, double-high)</u>
<u>0.255 - 256, 256</u>	<u>0100-FFFF</u>	<u>5 CPI (10 CPI double-wide, double-high)</u>
<u>Note: The Hs and Ls Parameters are effective only when hexadecimal 01 (decimal = 1) is specified in the Size Modifier parameter (Sm) and Hf Lf is not found.</u>		

Sizemod (Sm) : The binary number that is the size modifier. The valid sizes are:

- 00 -No change
- 01 - Size measures the width in 0.018 mm (1/1440 in.)
- 02, 03 - The font is proportional.
- All other values are regarded as 0.

H_c, L_c: Code page ID

H_c, L_c **Code page ID**

<u>HC</u>	<u>LC(Hex)</u>	<u>Code Page</u>
<u>01H</u>	<u>B5H</u>	<u>437</u>
<u>03H</u>	<u>52H</u>	<u>850</u>
<u>03H</u>	<u>53H</u>	<u>851</u>
<u>03H</u>	<u>54H</u>	<u>852</u>
<u>03H</u>	<u>57H</u>	<u>855</u>
<u>03H</u>	<u>59H</u>	<u>857</u>
<u>03H</u>	<u>5AH</u>	<u>858</u>
<u>03H</u>	<u>5CH</u>	<u>860</u>
<u>03H</u>	<u>5EH</u>	<u>862</u>
<u>03H</u>	<u>5FH</u>	<u>863</u>
<u>03H</u>	<u>60H</u>	<u>864</u>
<u>03H</u>	<u>61H</u>	<u>865</u>
<u>03H</u>	<u>62H</u>	<u>866</u>
<u>03H</u>	<u>65H</u>	<u>869</u>
<u>03H</u>	<u>98H</u>	<u>920</u>
<u>03H</u>	<u>9BH</u>	<u>923</u>
<u>28H</u>	<u>C5H</u>	<u>437G</u>
<u>2AH</u>	<u>65H</u>	<u>853</u>
<u>2AH</u>	<u>72H</u>	<u>USSR GOST</u>

Function	Command
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Set print quality ESC [d (n₁) (n₂) (m)
(0 ≤ n₁, n₂ ≤ 255) (n = n₁ + n₂ X 256)
m: Quality

m	Quality
---	---------

m(hex)	Quality
00	
01-7F	Draft
80-FE	LQ
FF	Default Font

ESC Q \$

Downloading

Select resident or downloaded font ESC I (n)
Ex. n = 0: Resident Draft
2:Resident Courier
4:Downloaded Draft
6:Downloaded Courier
Create download font ESC = (n₁) (n₂) ID (m₁) (m₂) (data)

Bit Image Graphics

Single-density graphics ESC K (n₁) (n₂) (data)
Double-density graphics ESC L (n₁) (n₂) (data)
High-speed double-density graphics ESC Y (n₁) (n₂) (data)
Quadruple-density graphics ESC Z (n₁) (n₂) (data)
High-resolution graphics ESC [g (n₁) (n₂) (m) (data)
Select graphics mode (in AG mode only) ESC * (m) (c₁) (c₂) (data)

Function	Command
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Barcode

Setup barcode parameter ESC [f (n₁) (n₂) (k) (m) (s) (v₁) (v₂)
(c) (data)

(0 ≤ n₁, n₂ ≤ 255) (n = n₁ + n₂ × 256)

k: Barcode type

k	Barcode type
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k value	barcode type
B1 hex	CODABAR (NW7)
B2 hex	EAN-13
B3 hex	EAN-8
B4 hex	CODE 39
B5 hex	INDUSTRIAL 2 OF 5
B6 hex	INTERLEAVED 2 OF 5
B7 hex	UPC-A
B8 hex	UPC-E
BA hex	CODE128

m: Module width

m	Module width
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m	unit module dots
00 hex	default(2 dots)
01 hex	2 dots
02 hex	2 dots
03 hex	3 dots
04 hex	4 dots

s: Space width adjustment

s	Space width adjustment
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“s” is used for fine adjustment for each “spaces” to match the optical conditions.

There is no effect for the “bar” width adjustment.

Range : -3 ≤ s ≤ 3

v₁, v₂: Bar length

v₁, v₂	Bar length
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Bar length is described 2 bytes v1 shows lower byte. v2 shows upper bytes.

And bar length is controlled by multiple value of an unit of 1/2160 inch.

Minimum value of v1, v2: 288 dec

vertical pitch : All the input data is rounded to the multiple value of following table.

c: Control flag

c Control flag

b0: Check Digit

0: No check code is generated by the printer.

The host computer should generate the check code.

1: Check code is generated automatically by the printer.

b1: Human Readable Character

0: Print On

1: Print Off

Note: Human readable character is proportionally printed under the barcode in OCR-B font.

b2: EAN-13, UPC-A flag character position

(EAN-13 : 13th digit)

(UPC-A : number system character)

0: Center

1: Under

b3-b7: not used

Set barcode data

ESC [p (n₁) (n₂) (data)

n₁, n₂: Command length

n₁, n₂ Command length

"n₁, n₂" show data quantity followed "ESC [p n₁, n₂".

"n₁" is a low byte of command length data in hexadecimal.

"n₂" is a high byte of command length data in hexadecimal.

"n₁, n₂" value should be the value in the following tables.

If undefined value is found in data string, the printer will ignore all the received barcode data which length is defined as "n₁, n₂".

1) Case of "automatic check digit generation flag off"

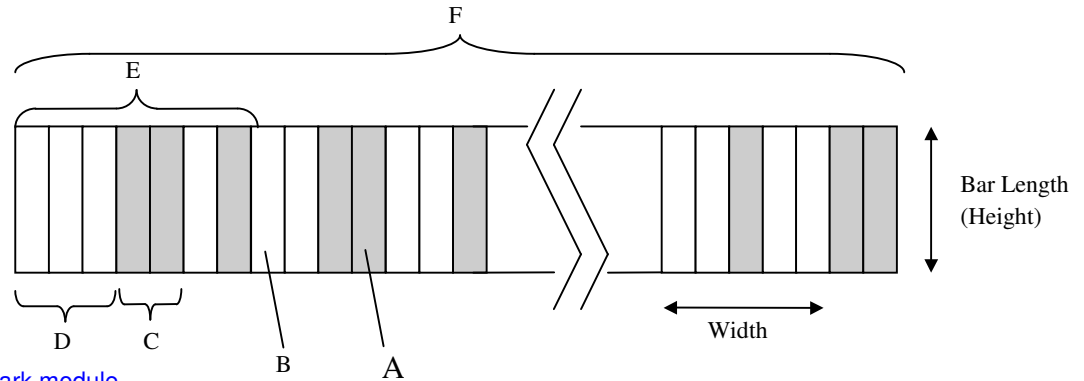
<u>Barcode Style</u>	<u>n1 (lowbyte)</u>	<u>n2 (high byte)</u>
<u>EAN-13</u>	<u>0D hex</u>	<u>00</u>
<u>EAN-8</u>	<u>08 hex</u>	<u>00</u>
<u>CODE 39</u>	<u>01 to FF hex</u>	<u>00</u>
<u>INTERLEAVED 2 of 5</u>	<u>01 to FF hex</u>	<u>00</u>
<u>UPC-A</u>	<u>0C hex</u>	<u>00</u>
<u>CODE 128</u>	<u>02 to FF hex</u>	<u>00</u>

2) Case of "automatic check digit generation flag on"

<u>Barcode Style</u>	<u>n1 (lowbyte)</u>	<u>n2 (high byte)</u>
<u>EAN-13</u>	<u>0C hex</u>	<u>00</u>
<u>EAN-8</u>	<u>07 hex</u>	<u>00</u>
<u>CODE 39</u>	<u>01 to FF hex</u>	<u>00</u>
<u>INTERLEAVED 2 of 5</u>	<u>01 to FF hex</u>	<u>00</u>
<u>UPC-A</u>	<u>0B hex</u>	<u>00</u>
<u>CODE 128</u>	<u>02 to FF hex</u>	<u>00</u>

Remarks

1) Definition barcode term



A: Dark module

The concept of module is applied to EAN-13, EAN-8, UPC-A and CODE-128.
One or multiple dark module makes bar element.

B: Light module

The concept of module is applied to EAN-13, EAN-8, UPC-A, and COD-128.
One or multiple light module makes space element.

C: Bar element

This element is actually printed "dark" by wire dot pins.
Bar width is modulated to each barcode symbology method.

D: Space element

This element is not printed i.e. "space" area.
Space width is modulated to each barcode symbology method.
Combination of multiple bars and spaces makes one barcode character.

E: Barcode character

Encoded pattern from one or two digit(s) of receiving barcode data.
Case of CPU, EAN, CODE 39 and Code A/B group of CODE-128,
each one byte data corresponds to one barcode character.
Case of INTERLEAVED 2 OF 5 and Code C group of CODE-128,
two bytes data is encoded to one barcode character.

F: Barcode

Printed result specified by each barcode standard format.
Width: width of horizontal direction.
Length: length of vertical direction.

2) If LF operation is made by an operation switch during printing the barcode,
the received barcode data is cleared and the barcode printing is stopped.

3) Barcode printing is always performed in a single direction.

4) Receiving after the barcode data, page length
and right/left margin change may affect barcode printing.

5) Barcode data and other print data are controlled independently.
So it is necessary to make a space for barcode print area when mixed print is needed.
(See Appendix B)

6) In the case of Interleaved 2 of 5, if received data strings is an odd number
(if check digit flag is on, the check data includes this number) the printer will add
a zero to the most digit.

7) In the case of CODE 39, the printer will add a start/stop character to the barcode and human readable character automatically.

8) In the case of CODE 128, the first byte of barcode data strings defines a character set of its followed data. If undefined character is included for the first byte except "A", "B", or "C", the printer will ignore all the data for barcode.

<u>Character Set</u>	<u>1st byte</u>	<u>meaning</u>
<u>A</u>	<u>A (41 hex)</u>	<u>Start character set A (Code A)</u>
<u>B</u>	<u>B (42 hex)</u>	<u>Start character set B (Code B)</u>
<u>C</u>	<u>C (43 hex)</u>	<u>Start character set C (Code C)</u>

9) In the case of CODE 128 and character set C, if received data strings is an odd number (if check digit flag is on, the check data includes this number) the printer will add a zero "0" character to the most digit.

10) In the case of CODE 128, the printer does not print both special function code of CODE 128 and ASCII function code for the human readable character.

11) In the case of CODE 128, even if the printer finds undefined code after the character set is changed by the function code, the printer will ignore all the barcode data defened by data length parameter "n1,n2", and no barcode print is performed.

12) When a paper empty error is occurred during barcode printing, the printer will stop printing and cancel all the barcode data already received.

13) When the module parameter is set to 1(m=1), the printer will always ignore the human readable flag. And also, if the printer finds out there is no space to print the human readable character in the barcode area, the printer may ignore the human readable flag.

**Code page contains Euro currency symbol

Command Sets

Function	Command
Cut Sheet Feeder Control*	
~~Feed a sheet from bin 1*~~	~~ESC EM 1~~
~~Feed a sheet from bin 2*~~	~~ESC EM 2~~
~~Feed a sheet from bin 3*~~	~~ESC EM E~~
Eject a page from the printer*	ESC EM R
Miscellaneous	
~~Sound the bell~~	~~BEL~~
Unidirectional printing on/off (on: $n = 1$, off: $n = 0$)	ESC U (n)
Add a carriage return to all line feeds (on: $n = 1$, off: $n = 0$)	ESC 5 (n)
Printer offline	ESC j
Select default settings	ESC [K (n_1) (n_2) (i) (ID) (p_1) (p_2)

Epson EP2 Quick Reference Guide

This section describes the printer commands for the Epson EP2 Emulation. Asterisks in the “Function” column indicate extended commands that are not supported by the original printer. See the *Programmer’s Reference Manual* for detailed information on using these commands.

Function	Command
Print Mode Control	
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 (n)
— n = 0:Normal	
1:Outlined	
2:Shaded	

Command Sets

3: Outlined and shadowed
One-line double-width characters on
One-line double-width characters off
Double-width characters on/off
(on: $n = 1$, off: $n = 0$)
Double-height characters on/off
(on: $n = 1$, off: $n = 0$)
Condensed characters on
Condensed 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: $n = 0$)
Select line

$n_1 = 3, n_2 = 0, d_1 = 1$

— $d_2 = 0$: Ignore command

1: Underline

2: Strike through

3: Overscore

— $d_3 = 0$ or — 4: Cancel line selection

1: Single line

2 or 3: Double line

5: Single-dotted line

6 or 7: Double-dotted line

SO or ESC SO

DC4

ESC W (n)

ESC w (n)

SI or ESC SI

DC2

ESC S (n)

ESC T

ESC - (n)

ESC (- (n_1) (n_2) (d_1) (d_2) (d_3)

Function	Command
Select printing style	ESC ! (n)
This command allows you to combine various printing styles. The value of n is the sum of the values of the styles you want to combine.	
n = 0: Pica pitch	
1: Elite pitch	
2: Proportional spacing	
4: Condensed	
8: Shadow	
16: Bold	
32: Double-width	
64: Italics	
128: Underline	
Horizontal Control	
Space	SP
Backspace	BS
Carriage return	CR
Set elite pitch	ESC M
Set pica pitch	ESC P
Set 15 CPI	ESC g
Proportionally spaced characters on/off (on: n = 1, off: n = 0)	ESC p (n)
Set inter-character space to n/120 inch (for draft) or n/180 inch (for letter and proportional) (0 ≤ n ≤ 127)	ESC SP (n)
Set character pitch to (n ₁ + n ₂ X 256)/360 inch (0 ≤ n ₁ ≤ 255) (0 ≤ n ₂ ≤ 4)	ESC c (n ₁) (n ₂)
Select character pitch (specify unit of pitch) n ₁ = 1, n ₂ = 0	ESC (U (n ₁) (n ₂) (d)
d = 10 to 19: 10/3600 inch = 1/360 inch	
d = 20 to 29: 20/3600 inch = 1/180 inch	
d = 30 to 39: 30/3600 inch = 1/120 inch	
d = 40 to 49: 40/3600 inch = 1/90 inch	
d = 50 to 59: 50/3600 inch = 1/72 inch	
d = 60 to 69: 60/3600 inch = 1/60 inch	

Function	Command
Vertical Control	
Line feed	LF
Form feed	FF
Advance paper $n/180$ inch ($1 \leq n \leq 255$)	ESC J (n)
Set line spacing to $1/8$ inch	ESC 0
Set line spacing to $n/180$ inch ($0 \leq n \leq 255$)	ESC 3 (n)
Set line spacing to $n/60$ inch ($0 \leq n \leq 127$)	ESC A (n)
Set line spacing to $1/6$ inch	ESC 2
Set line spacing to $n/360$ inch ($0 \leq n \leq 255$)	ESC + (n)
Tabulation	
Horizontal tab execution	HT
Set horizontal tabs	ESC D (n_1) ... (n_k) NUL
The values of n_1 to n_k in this command are the ASCII values of the print columns (at the current character width) at which tabs are to be set. ($1 \leq n \leq 255$) ($1 \leq k \leq 32$)	
Move print position $n/120$ inch (for draft) ^(*1) or $n/180$ inch (for letter) ^(*1) right from left margin ($n = n_1 + n_2 \times 256$)	ESC \$ (n_1) (n_2)
Move print position $n/120$ ^(*1) inch (for draft) or $n/180$ ^(*1) inch (for letter) left or right from the current position ($n = n_1 + n_2 \times 256$)	ESC \ (n_1) (n_2)
Vertical tab execution	VT
Set vertical tabs	ESC B (n_1) ... (n_k) NUL
The values of n_1 to n_k in this command are the ASCII values of the lines (at the current line spacing) at which tabs are to be set. ($1 \leq n \leq 255$) ($1 \leq k \leq 16$)	
Move to dot line ($d_1 + d_2 \times 256$)/360 ^(*2) inch $n_1 = 2, n_2 = 0$ ($0 \leq d_1 \leq 255$) ($0 \leq d_2 \leq 127$)	ESC (V (n_1) (n_2) (d_1) (d_2)
Vertical relative move by ($d_1 + d_2 \times 256$)/360 ^(*2) inch $n_1 = 2, n_2 = 0$ ($0 \leq d_1 \leq 255$) ($0 \leq d_2 \leq 127$) $-32768 \leq d_1 + d_2 \times 256 \leq 32768$	ESC (v (n_1) (n_2) (d_1) (d_2)

*1 The value depends on the pitch set by the ESC (U command).

*2 The value depends on the pitch set by the ESC (U command). The default is 1/360 inch.

Function	Command
Page Formatting	
Set right margin to column n ($1 \leq n \leq 255$)	ESC Q (n)
Set left margin to column n ($0 \leq n \leq 255$)	ESC I (n)
Set top and bottom margins from top of page $n_1 = 4, n_2 = 0$	ESC (c (n ₁) (n ₂) (t ₁) (t ₂) (b ₁) (b ₂)
• Top margin = $(t_1 + t_2 \times 256)/360^{(*1)}$ inch ($0 \leq t_1 \leq 255$) ($0 \leq t_2 \leq 127$)	
• Bottom margin = $(b_1 + b_2 \times 256)/360^{(*1)}$ inch ($0 \leq b_1 \leq 255$) ($0 \leq b_2 \leq 127$)	
Set perforation skip by n lines _____	ESC N (n)
($1 \leq n \leq 127$)	
Perforation skip off	—ESC O
Set page length to n lines ($1 \leq n \leq 127$)	—ESC C (n)
Set page length to n inches ($1 \leq n \leq 22$)	—ESC C NUL (n)
Set page length to $(d_1 + d_2 \times 256)/360^{(*1)}$ inch _____	ESC (C (n ₁) (n ₂) (d ₁) (d ₂)
$n_1 = 2, n_2 = 0$	
($0 \leq d_1 \leq 255$) ($0 \leq d_2 \leq 127$)	
Color Selection	
Select print color _____	ESC r (n)
—n = 0:Black	
—1:Magenta (red)	
—2:Cyan (blue)	
—3: Violet	
—4: Yellow	
—5:Orange	
—6: Green	
Character Set Control	
Select character set 1	ESC 7
Select character set 2	ESC 6
Select the active character set assigned with the ESC (t command ($0 \leq n \leq 3$))	ESC t (n)

*1 The value depends on the pitch set by the ESC (U command. The default is 1/360 inch.

Command Sets

Function	Command	
Select international character set — $n = 0$: _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	ESC R (n)	
Assign a character set to active character set number 0 to 3, $n_1 = 3$, $n_2 = 0$ d_2, d_3 : Decimal $d_1 =$ 0: Active character set number 0, default is Italics 1: Active character set number 1, default is Graphics 2: Active character set number 2, default is DLL 3: Active character set number 3, default is Graphics	ESC (t (n_1) (n_2) (d_1) (d_2) (d_3)	
d_2	d_3	Character Set
0	0	Italic
1	0	PC 437 (USA)
<u>1</u>	<u>16</u>	<u>PC 437G (Greek)</u>
3	0	PC 850 (Multilingual)
<u>3</u>	<u>16</u>	<u>PC 858 (Multilingual + Euro)**</u>
4	0	PC 851 (<u>Greek</u>)*
<u>5</u>	<u>0</u>	<u>PC 853 (Turkish)</u>
<u>6</u>	<u>0</u>	<u>PC 855 (Cyrillic)</u>
7	0	PC 860 (Portugal)
8	0	PC 863 (Canada-French)
9	0	PC 865 (Norway)
10	0	PC 852 (<u>East Europe</u>)*
11	0	PC 857 (<u>Turkish</u>)*
<u>12</u>	<u>0</u>	<u>PC 862 (Israel)</u>
<u>13</u>	<u>0</u>	<u>PC 864 (Arabic)</u>
14	0	PC 866 (<u>Russian</u>)*
<u>15</u>	<u>0</u>	<u>PC 869 (Greek)</u>
<u>16</u>	<u>0</u>	<u>USSR GOST</u>
~~44~~	~~0~~	~~PC 858**~~
29	15	<u>PC 923 (Latin-9 ISO 8859-15)**</u>
<u>31</u>	<u>0</u>	<u>PC920 (Latin-5)</u>

**Code page contains Euro currency symbol

Function	Command
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Print $n_1 + n_2 \times 256$ characters from all-character set ESC (^ (n_1) (n_2)

(*character codes*)

(0 ~~$\leq$~~ ~~n_1~~ ~~$\leq$~~ 255) (0 ~~$\leq$~~ ~~n_2~~ ~~$\leq$~~ 127)

(0 ~~$\leq$~~ ~~n_1~~ + $n_2 \times 256$ ~~$\leq$~~ 255)

(0 ~~$\leq$~~ ~~*character codes*~~ ~~$\leq$~~ 254)

Command Sets

Function	Command
Clear input buffer	CAN
Delete a character	DEL
Force most significant bit to 1	ESC >
Force most significant bit to 0	ESC =
Cancel control over most significant bit	ESC #
~~**Code page contains Euro currency symbol~~	
Font Selection and Downloading	
Select font	ESC % (n)
— n = 0:Resident character set	
1:Downloaded character set	
Select letter or draft quality	ESC x (n)
— n = 0:Draft	
1: Letter	
Select type style	ESC k (n)
• Bitmap font:	
— n = 0:RomanCourier	
1:Sans serif*Courier	
2:Courier*	
3:Prestige*	
4:Script*Courier	
5:OCR-B*	
6:OCR-A*	
7:Orator*Courier	
10:Roman T*	
11:Sans serif H*	
12:Bold*	
13:Gothic*	
* On some code pages or point sizes, the Roman font or Sans serif font is selected.	
— 8:Courier	
— 9:Courier	
• Scalable font:	
— n = 0:Timeless	
— 1:Nimbus Sans @	
— 2:Courier	
— 3:Timeless	
— 4:Timeless	
— 5:Timeless	
— 7:Timeless	
— 8:Timeless	
— 9:Timeless	
Set scalable font mode	ESC X m (n ₁) (n ₂)
• m sets character pitch.	
— m = 0:Keep previous pitch	
1:Set proportional space mode	
5:Select character pitch (m/360 inch)	
(Reset proportional space mode)	

Function	Command
Function	Command

- n_1 and n_2 set point size of font.
Point size = $(n_1 + n_2 \times 256) \times 0.5$ point
($0 \leq n_1 \leq 255$) ($0 \leq n_2 \leq 127$)

Copy resident character set to download area
Create download font

ESC : NUL (n) (s)
ESC & NUL (n_1) (n_2) (d_0) (d_1)
(d_2) (data)

Bit Image Graphics

Graphics type m graphics
Bit image mode definition
Single-density graphics
Double-density graphics
High-speed double-density graphics
Quadruple-density graphics
Select raster image graphics
 $n_1 = 1, n_2 = 0$
 $d = 1$: Raster image graphics mode
Print raster image graphics

ESC * (m) (n_1) (n_2) (data)
ESC ? (s) (n)
ESC K (n_1) (n_2) (data)
ESC L (n_1) (n_2) (data)
ESC Y (n_1) (n_2) (data)
ESC Z (n_1) (n_2) (data)
ESC (G (n_1) (n_2) (d)
ESC . (c) (v) (h) (m) (n_1) (n_2) (data)

Barcode

Barcode setup and print

ESC (B (n_1) (n_2) (k) (m) (s) (v_1) (v_2)
(c) (data)

($0 \leq n_1, n_2 \leq 255$) ($n = n_1 + n_2 \times 256$)

k: Barcode type

k Barcode type

k value	barcode type
00 hex	EAN-13
01 hex	EAN-8
02 hex	INDUSTRIAL 2 OF 5
03 hex	UPC-A
04 hex	UPC-E
05 hex	CODE 39
06 hex	CODE128

m: Module width

m Module width

m	unit module dots
02 hex	2 dots(default)
03 hex	3 dots
04 hex	4 dots

s: Space width adjustment

s Space width adjustment

“s” is used for fine adjustment for each “spaces” to match the optical conditions.
There is no effect for the “bar” width adjustment.
Range : $-3 \leq s \leq 3$

v₁, v₂: Bar length

v₁, v₂ Bar length

Bar length is described 2 bytes v₁ shows lower byte. v₂ shows upper bytes.

And bar length is controlled by multiple value of an unit of 1/2160 inch.

Minimum value of v₁, v₂: 288 dec

vertical pitch : All the input data is rounded to the multiple value of following table.

c: Control flag

c Control flag

b0: Check Digit

0: No check code is generated by the printer.

The host computer should generate the check code.

1: Check code is generated automatically by the printer.

b1: Human Readable Character

0 : Print On

1 : Print Off

Note: Human readable character is proportionally printed
under the barcode in OCR-B font.

b2: EAN-13, UPC-A flag character position

(EAN-13 : 13th digit)

(UPC-A : number system character)

0 : Center

1 : Under

b3-b7: not used

Cut Sheet Feeder Control

Feed a sheet from bin 1 ESC EM 1

Feed a sheet from bin 2 ESC EM 2

Feed a sheet from bin 3 (*1) ESC EM E

Eject a page from the printer ESC EM R

Miscellaneous

Select unidirectional mode 1lineSound the bell BEL

Move print head to home position ESC <

Unidirectional printing on/off ESC U (n)

(on: n = 1, off: n = 0)

Initialize printer ESC @

*1: This is an extended command not supported by the original protocol.