C

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+XL24~~E 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	ESC [@ (n_1) (n_2) (m_1) ... (m_4)

$n_1 = 4$, $n_2 = 0$, $m_1 = 0$, $m_2 = 0$

m_3 controls character height and line spacing:

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:

m_4	Width
0	Unchanged
1	Normal
2	Double

Function	Command
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

Function	Command
~~Function~~	~~Command~~

Horizontal Control

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

Vertical Control

Line feed	LF
Form feed	FF
Advance paper n/216 inch ($1 \le n \le 255$)	ESC J (n)
Advance paper n/180 inch (in AG mode)	ESC J (n)
($1 \le \le n \le 255$)	
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	ESC 3 (n)
($0 \le n \le 255$)	
Set line spacing to n/180 inch (in AG mode)	ESC 3 (n)
($0 \le n \le 255$)	
Preset line spacing to n/72 inch	ESC A (n)
($1 \le n \le 255$)	
Preset line spacing to n/60 inch (in AG mode)	ESC A (n)
($1 \le n \le 255$)	
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	ESC [\ (m_1) (m_2) (t_1) ... (t_4)
1/216 or 1/180 inch (for ESC J and ESC 3) $m_1 = 4$, $m_2 = 0$	
$0 \le t_1 \le 255$, $0 \le t_2 \le 255$, $t_3 = 0$	
$t_4 = 180$ or 216	
Reverse line feed	ESC]

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. ($1 \le n \le 255$) ($1 \le k \le 28$)	
Clear all horizontal tabs	ESC D NUL
Move print position right by n/120 inch	ESC d (n_1) (n_2)
($0 \le n_1, n_2 \le 255$) (n = $n_1 + n_2$ X 256)	

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.
($1 \leq n \leq 255$) ($1 \leq k \leq 64$)

Function	Command
Clear all vertical tabs	ESC B NUL
Reset tabs to default values	ESC R

Page Formatting

Function	Command
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 ≤ n ≤ 255)(1 n 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

Function	Command
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) (chars.)

(chars.: codes of characters to print,
$0 \leq$ chars. ≤ 255)

Function	Command
Print a character from all-character set	ESC ^ (char.)

(char.: a code of character to print,
$0 \leq$ char. ≤ 255)

Function	Command
Select code page table	ESC [T (n_1) (n_2) 0 0 (c_1) (c_2)

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

c1, c2: Decimal ($n_1 = 4$, $n_2 = 0$)

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*
3	87	Code page 855
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
3	96	Code page 864
3	97	Code page 865
3	98	Code page 866*
3	101	Code page 869
3	152	Code page 920
3	155	Code page 923**
40	197	Code page 437G
42	101	Code page 853
42	114	Code page USSR GOST

**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
Set font global	ESC [I (n_1) (n_2) (H_f) (L_f) (H_S) (L_S) (S_m) 0 (H_C) (L_C)

$(0 \leq n_1, n_2 \leq 255)$ $(n = n_1 + n_2$ X 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.

Dec(Hs,Ls)	Hex (Hs,Ls)	Description
0,0 - 0,65	0000 - 0041	24 CPI Subscript
0,66 - 0,77	0042 - 004D	20 CPI Subscript
0,78 - 0,89	004E - 0059	17 CPI Normal
0,90 - 0,107	005A - 006B	15 CPI Normal
0,108 - 0,131	006C - 0083	12 CPI Normal
0,132 - 0,155	0084 - 009B	10 CPI Normal
0,156 - 0,179	009C-00B3	8.5 CPI(17 CPI double-wide)
0,180 - 0,215	00B4-00D7	7.5 CPI(15 CPI double-wide)
0,216 - 0,254	00D8 - 00FE	6 CPI (12 CPI double-wide, double-hight)
0,255 – 256, 256	0100-FFFF	5 CPI (10 CPI double-wide, double-high)
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.		

V3

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

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

V1

Function	Command
Set print quality	ESC [d (n_1) (n_2) (m)

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

m_f: 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 = (n_1) (n_2) ID (m_1) (m_2) (data)

Bit Image Graphics

Single-density graphics ESC K (n_1) (n_2) (data)
Double-density graphics ESC L (n_1) (n_2) (data)
High-speed double-density graphics ESC Y (n_1) (n_2) (data)
Quadruple-density graphics ESC Z (n_1) (n_2) (data)
High-resolution graphics ESC [g (n_1) (n_2) (m) (data)
Select graphics mode (in AG mode only) ESC * (m) (c_1) (c_2) (data)

Function	Command
Barcode	
Setup barcode parameter	ESC [f (n_1) (n_2) (k) (m) (s) (v_1) (v_2) (c) $(data)$

$(0 \le n_1, n_2 \le 255)$ $(n = n_1 + n_2 \ X \ 256)$

k: Barcode type

k	**Barcode type**

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**

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**

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

v_1, v_2: Bar length

v_1, v_2	**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

Set barcode data   ESC [p (n_1) (n_2) (*data*)

n_1, n_2: Command length

n_1, n_2	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"

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

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

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

Remarks
1) Definition barcode term
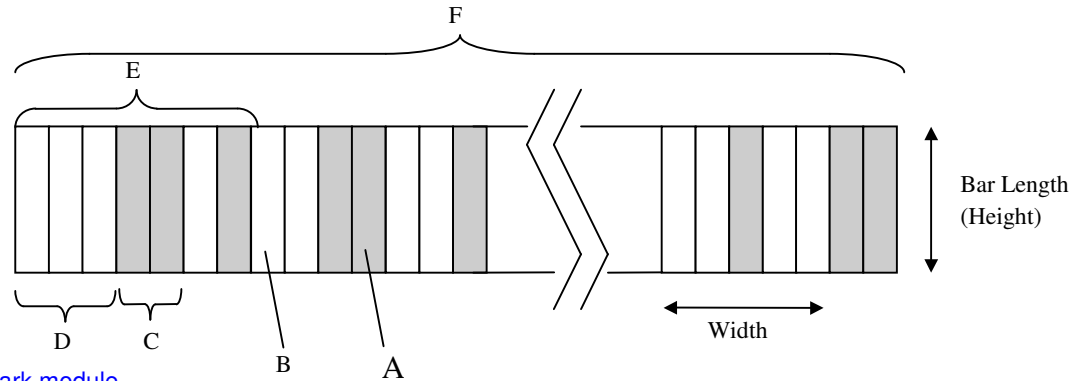
A: Dark module
    The concept of module is applied to EAN-13, EAN-8, UPC-A and CODE-128.
    One or multiple dark module makes bar element.

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.

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

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 defended 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

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	

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 (n)
(on: $n = 1$, off: $n = 0$)	
Double-height characters on/off	ESC w (n)
(on: $n = 1$, off: $n = 0$)	
Condensed characters on	SI or ESC SI
Condensed characters off	DC2
Subscript or superscript printing on	ESC S (n)
(subscript: $n = 1$, superscript: $n = 0$)	
Subscript and superscript printing off	ESC T
Underline on/off	ESC - (n)
(on: $n = 1$, off: $n = 0$)	
Select line	ESC (- (n_1) (n_2) (d_1) (d_2) (d_3)

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

$d_2 =$ 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

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

Function	Command
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	ESC p (*n*)

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

Function	Command
Set inter-character space to n/120 inch (for draft)	ESC SP (*n*)

or n/180 inch (for letter and proportional)
($0 \leq n \leq 127$)

Function	Command
Set character pitch to ($n_1 + n_2$ X 256)/360 inch	ESC c (n_1) (n_2)

($0 \leq n_1 \leq 255$) ($0 \leq n_2 \leq 4$)

Function	Command
Select character pitch (specify unit of pitch)	ESC (U (n_1) (n_2) (*d*)

$n_1 = 1$, $n_2 = 0$

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]	ESC $ (n_1) (n_2)

    or n/180 inch (for letter)[*1] right from left margin
($n = n_1 + n_2$ X 256)

Move print position n/120[*1] inch (for draft)	ESC \ (n_1) (n_2)

    or n/180[*1] inch (for letter) left or right from the current position
($n = n_1 + n_2$ X 256)

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 ($d_1 + d_2$ X 256)/360[*2] inch	ESC (V (n_1) (n_2) (d_1) (d_2)

    $n_1 = 2$, $n_2 = 0$
($0 \leq d_1 \leq 255$) ($0 \leq d_2 \leq 127$)

Vertical relative move by ($d_1 + d_2$ X 256)/360[*2] inch	ESC (v (n_1) (n_2) (d_1) (d_2)

    $n_1 = 2$, $n_2 = 0$
($0 \leq d_1 \leq 255$) ($0 \leq d_2 \leq 127$)
$-32768 \leq d_1 + d_2$ X 256 ≤ 32768

[*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 $\quad$ ESC Q (n)
$\quad$ ($1 \le n \le 255$)

Set left margin to column n $\quad$ ESC l (n)
$\quad$ ($0 \le n \le 255$)

Set top and bottom margins from top of page $\quad$ ESC (c (n_1) (n_2) (t_1) (t_2) (b_1) (b_2)
$\quad n_1 = 4, n_2 = 0$

- Top margin = ($t_1 + t_2$ X 256)/360$^{(*1)}$ inch
$\quad\quad ($0 \le t_1 \le 255$) ($0 \le t_2 \le 127$)

- Bottom margin = ($b_1 + b_2$ X 256)/360$^{(*1)}$i nch
$\quad\quad ($0 \le b_1 \le 255$)
$\quad\quad ($0 \le b_2 \le 127$)

Set perforation skip by n lines $\quad$ ESC N (n)
$\quad$ ($1 \le n \le 127$)

Perforation skip off $\quad$ ESC O

Set page length to n lines ($1 \le n \le 127$) $\quad$ ESC C (n)

Set page length to n inches ($1 \le n \le 22$) $\quad$ ESC C NUL (n)

Set page length to ($d_1 + d_2$ X 256)/360$^{(*1)}$ inch $\quad$ ESC (C (n_1) (n_2) (d_1) (d_2)
$\quad n_1 = 2, n_2 = 0$
$\quad$ ($0 \le d_1 \le 255$) ($0 \le d_2 \le 127$)

Color Selection

Select print color $\quad$ ESC r (n)
$\quad n$ = 0:Black
$\quad$ 1:Magenta (red)
$\quad$ 2:Cyan (blue)
$\quad$ 3: Violet
$\quad$ 4: Yellow
$\quad$ 5:Orange
$\quad$ 6: Green

Character Set Control

Select character set 1 $\quad$ ESC 7

Select character set 2 $\quad$ ESC 6

Select the active character set assigned with the $\quad$ ESC t (n)
$\quad$ ESC (t command ($0 \le n \le 3$)

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

Function	Command
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
Assign a character set to active character set	ESC (t (n_1) (n_2) (d_1) (d_2) (d_3)

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

d_2	d_3	Character Set
0	0	Italic
1	0	PC 437 (USA)
1	16	PC 437G (Greek)
3	0	PC 850 (Multilingual)
3	16	PC 858 (Multillingual + Euro)**
4	0	PC 851 (Greek)*
5	0	PC 853 (Turkish)
6	0	PC 855 (Cyrillic)
7	0	PC 860 (Portugal)
8	0	PC 863 (Canada-French)
9	0	PC 865 (Norway)
10	0	PC 852 (East Europe)*
11	0	PC 857 (Turkish)*
12	0	PC 862 (Israel)
13	0	PC 864 (Arabic)
14	0	PC 866 (Russian)*
15	0	PC 869 (Greek)
16	0	USSR GOST
44	0	PC 858**
29	15	PC 923 (Latin-9 ISO 8859-15)**
31	0	PC920 (Latin-5)

**Code page contains Euro currency symbol

Function	Command

Print $n_1 + n_2$ X 256 characters from all-character set   ESC (^ (n_1) (n_2)
    (*character codes*)
    $(0 \leq n_1 \leq 255)$ $(0 \leq n_2 \leq 127)$
    $(0 \leq n_1 + n_2$ X 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:Roman~~Courier~~
        1:Sans serif*~~Courier~~
        2:Courier*
        3:Prestige*
        4:Script*~~Courier~~
        5:OCR-B*
        6:OCR-A*
        7~~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 (*n₁*) (*n₂*)

    • 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

- n_1 and n_2 set point size of font.

    Point size = $(n_1 + n_2 \times 256) \times 0.5$ point

    $(0 \le n_1 \le 255)$ $(0 \le n_2 \le 127)$

Copy resident character set to download area	ESC : NUL (n) (s)
Create download font	ESC & NUL (n_1) (n_2) (d_0) (d_1)
	(d_2) (*data*)

Bit Image Graphics

Graphics type m graphics	ESC * (m) (n_1) (n_2) (*data*)
Bit image mode definition	ESC ? (s) (n)
Single-density graphics	ESC K (n_1) (n_2) (*data*)
Double-density graphics	ESC L (n_1) (n_2) (*data*)
High-speed double-density graphics	ESC Y (n_1) (n_2) (data)
Quadruple-density graphics	ESC Z (n_1) (n_2) (*data*)
Select raster image graphics	ESC (G (n_1) (n_2) (d)

   $n_1 = 1$, $n_2 = 0$

   $d = 1$: Raster image graphics mode

Print raster image graphics	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*)

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

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 :$-3 \leqq s \leqq 3$

v_1, v_2: Bar length

v_1, v_2	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 (on: $n = 1$, off: $n = 0$)	ESC U (n)
Initialize printer	ESC @

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