portable printer

Instruction Set

content

1 list of instructions

LF	print and feed	Print and Feed Instructions
CR	Enter	
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ESC !	Set character printing method	
GS ! n	set character size	
GS B n	Set and cancel reverse printing	
ESC - n	Set and cancel underline	
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ESC %n	Select and cancel user-defined character set	
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GS v 0	Picture horizontal modulo data printing	
GS*	Define download bitmap	
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FS q	Define NV Bitmap	
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GS	x1sL ..... horizontal position print line segment (curve print command)	
HT	'horizontal tab set horizontal tab	Tabulation instructions
ESC D	position	
GS H	Set the 1D barcode readable characters (HRI) print position	1D barcode printing instructions
GS h	Set 1D barcode height	
GS w	Set 1D barcode width	
GS k	Printing 1D barcodes	
GS (	print QR code	QR code print instruction
GS (k pL pH cn fn n	Set the module type of QR code	
GS (k pL pH cn	Set the error correction level error of the QR code	

fn n		
GS(k pL pH cn fn m d1…dk	Store QR code data in QR code buffer	
GS(k pL pH cn fn m	print QR code	
GS(k pL pH cn fn m	Set the graphic information of the QR code	
GS rn	delivery status	status command
DLE EOT n Real-time	transmission status	
DLE ENQ n Real-time	printer request	
GS an	Enable, disable automatic status reply (ASB)	
ESC @	Initialize the printer	other instructions
DC2 T	Print a self-test	
ESC 7	page to set the print density	

2 Instruction details

ÿPrint and paper feed instructions

print and feed

Instruction Name Print and Feed	
instruction code	ASCII: LF Decimal: 10 Hexadecimal: 0A
Function description	Print the content in the print buffer, then feed one line according to the current line spacing, and adjust the print position to the start position of the next line
Parameter Range No	
Default Value No	
Supported Models All Model Notes	
No Usage Examples No	

Enter

command name carriage return	
instruction code	ASCII: CR Decimal: 13 Hexadecimal: 0D
Function description When the print buffer is not empty, the function is the same as	
LF, otherwise it has no effect	

print and feed **n** points

Order name print and feed n points	
instruction code	ASCII: ESC J n Decimal: 27 74 n Hex: 1B 4A n
Function description Print the content in the print buffer and feed n points	
Parameter range 0 ÿ n ÿ 255 Default value No supported models All models	
Precautions	When the print buffer is empty, only feed n points. After this command is executed, the print position moves to the start position of the next line

Example of use 1b 40 30 31 32 1b 4a 10	

print and feed **n** lines

command name print and feed n lines	
instruction code	ASCII: ESC dn Decimal: 27 100 n Hexadecimal: 1B 64 n
Function description Print the content in the print buffer and feed n lines	
Parameter range 0 ÿ n ÿ 255 Default value No supported models All models	
Notes This command sets the print start position to the line start point	Example 1b 40 30 31 32 1b 64 01

ÿPrint setting command

Set line spacing to **n** points

The command name sets the line spacing to n points	
instruction code	ASCII: ESC 3 n Decimal: 27 51 n Hexadecimal: 1B 33 n
Function description Set the line spacing to n points	
Parameter range 0 ÿ n ÿ 255 Default value	
Supported models All models	n = 32 line spacing is shown
as follows:	
Precautions	 If the set line spacing is less than the maximum character height in a line, then the line spacing is equal to the maximum character height. If ESC 2, ESC @, printer reset, printer power off, the line spacing returns to the default value
Example of use	1b 40 1b 33 30 30 31 32 0d 0a 30 31 32 0d 0a 1b 32 30 31 32 0d 0a 30 31 32 0d 0a

Set line spacing to default

Directive name sets line spacing to default	

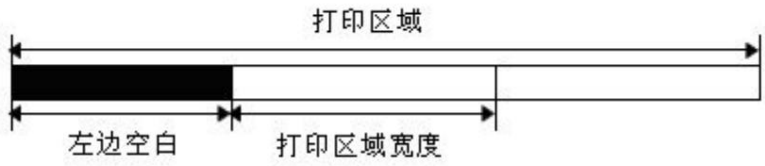
instruction code	ASCII: ESC 2 Decimal: 27 50 Hex: 1B 32 Function Description
Set the line spacing to the default 33 points Parameter range	
No default value No supported models All models	
Precautions	For details of line spacing, see ESC 3 command. If the set line spacing is less than the maximum character height in a line, then the line spacing is equal to the maximum character height. You can use ESC 3 to customize the line spacing
Example of use none	

Set the print position

Command name to set the print position	
instruction code	ASCII: ESC $ nL nH Decimal: 27 36 nL nH Hexadecimal: 1B 24 nL nH
Function description Adjust the printing position to the point (nL + nH × 256) from the printing starting position.	
Parameter range 0 ÿ nL ÿ 255, 0 ÿ nH ÿ 255 Default value No supported models All models	
Precautions	This command is only valid for this line. After a line break, the print position is reset to the print start position, and if it exceeds the print range, it will move to the next line to print.
Example of use	1b 40 1b 24 08 00 30 31 32 0d 0a 30 31 32 0d 0a

Set the left margin

Command name to set the print position	
instruction code	ASCII: GS L nL nH Decimal: 29 76 nL nH Hexadecimal: 1D 4C nL nH Function Description Set the left
blank amount to (nL + nH × 256) point Parameter range 0 ÿ nL ÿ 255, 0 ÿ nH ÿ	
255 Default None Supported Models All Models	
Precautions	This command is only valid when processing at the beginning of a line. The legend is as follows:

	 If the setting is outside the printable range, the maximum value of the printable unit is used
Example of use	1b 40 1d 4c 08 00 30 31 32 0d 0a 30 31 32 0d 0a

Set horizontal and vertical movement units

Command name Set horizontal and vertical movement units	
instruction code	ASCII: GS P xy Decimal: 29 80 xy Hexadecimal: 1D 50 xy • Set the horizontal movement unit to
Function description	approximately 25.4/ x mm (1/ x inch) respectively and the vertical movement unit to 25.4/y mm (1/y inch). • When x and y are 0, x and y are set to their default values.
The parameter range is 0 ÿ x ÿ 255, 0 ÿ y ÿ 255 x = 200, y = 380, and one	
Defaults	moving unit is one printing point. The lateral distance is about 1/8mm and the longitudinal distance is about 1/15mm. Support model 80XXX • Mobile unit can be set in standard mode, but cannot be set in page mode
Precautions	• Landscape is perpendicular to the paper feed direction, and portrait is the paper feed direction. • In standard mode, the following commands use x or y, even if the characters are rotated (upside down or 90° clockwise; ÿ Commands using x: ESC SP, ESC $, ESC \, FS S, GS L, GS W ÿUse y command: ESC 3, ESC J, GS V • In page mode, use x or y to be determined according to the area direction and printing starting position: ÿWhen the printing starting position is set to the upper left corner with ESC T command (Printing direction is from left to right) or lower right corner (Printing direction is from right to left): Command with x: ESC SP, ESC $, ESC W, ESC \, FS S Command with y: ESC 3, ESC J , ESC W, GS $, GS \, GS V ÿWhen the printing start position is set to the upper right corner (printing direction is from top to bottom) or the lower left corner (printing direction is from bottom to top) with ESC T command: use x Commands: ESC 3, ESC J, ESC W, GS $, GS \ Commands with y: ESC SP, ESC $, ESC W, ESC \,FS S, GS V • This command does not affect other settings previously set . • The smallest unit of movement is the result of the combined action of this command and other commands. • One inch is equal to 25.4mm.
use example 1d 50 c8 c8	

	1B 4C 1B 57 30 00 00 00 78 00 30 00 1B 33 18 1B 57 30 31 32 30 31 32 30 31 32 30 31 32 30 31 32 30 31 32 30 31 32 30 31 32 30 31 32 30 31 32 30 31 32 30 31 32 30 31 32 30 31 32 30 31 32 30 31 32 0C

Set character printing method

Command name set character printing method	
instruction code	ASCII: ESC ! n Decimal: 27 33 n Hexadecimal: 1B 21 n Set the character printing
Function description	mode (font, inverse, inversion, bold, double height, double width, and underline), the bit definition of parameter n is as follows : Bit function value **0 1** 0 Normal Small 1 Undefined 2 Undefined 3 Bold Cancel Set 4 Times High Cancel Set 5 Double Width Cancel Set 6 Undefined 7 Underline Cancel Set
Parameter range No	
default value Supported	n = 0
models All models	
Precautions	This command is valid for both Chinese and foreign fonts. When ESC @, printer reset or power off, the setting of this command is invalid.
Example of use	1B 40 1B 21 01 30 31 32 0D 0A 1B 40 1B 21 02 30 31 32 0D 0A 1B 40 1B 21 04 30 31 32 0D 0A 1B 40 1B 21 08 30 31 32 0D 0A 1B 40 1B 21 10 30 31 32 0D 0A 1B 40 1B 21 20 30 31 32 0D 0A 1B 40 1B 21 40 30 31 32 0D 0A 1B 40 1B 21 80 30 31 32 0D 0A

set character size

Command name set character size	
instruction code	ASCII: GS!n Decimal: 29 33 n Hex: 1d 21 n
Function description	Set the character size to 1-8 times the width and 1-8 times the height Defined as follows: Use 0 to 3 digits to set the character height and 4 to 7 digits to set the character width as shown below

Table 1 Character width setting

hex decimal width		
00	0	1(normal)
10	16	2(double width)
20	32	3
30	48	4
40	64	5
50	80	6
60	96	7
70	112	8

Table 2 Character height setting

hex decimal width		
00	0	1 (Normal)
01	1	2 (double height)
02	2	3
03	3	4
04	4	5
05	5	6
06	6	7
07	7	8

parameter range none	
Default	n = 0
Support Models All Models	
Precautions	This command is valid for Chinese fonts and foreign fonts except HRI characters When ESC @, printer reset, power off, the setting of this command is invalid
Example of use	1b 40 1d 21 11 30 31 32 0d 0a 30 31 32 0d 0a

Set and cancel reverse printing

Command name setting, cancel reverse printing	
instruction code	ASCII: GS B n Decimal: 29 66 n Hexadecimal: 1d 42 n
Function description	Sets or cancels the reverse print mode. When the least significant bit of n is 0, the highlight mode is turned off. When the least significant bit of n is 1, the highlight mode is turned on.
parameter range none	
Default	n = 0
Support Models All Models	
Caution Only the least significant bit of n is valid.	

	This command is valid for both built-in characters and user-defined characters. When the reverse mode is on, it is also valid for the whitespace set by ESC SP. This command does not affect bitmaps, user-defined bitmaps, barcodes, HRI characters, and spaces skipped by HT, ESC $. This command does not affect line spacing. Invert mode takes precedence over underline mode. When the reverse mode is set, even if the underline mode is on Also banned (but not cancelled). When ESC @, printer reset, power off, the setting of this command is invalid
Example of use	1b 40 1d 42 01 30 31 32 0d 0a 30 31 32 0d 0a

Set and cancel underline

Command name setting, removing underline	
instruction code	ASCII: ESC - n Decimal: 27 45 n Hex: 1B 2D n The underline mode is
Function description	set/released based on the following n value: n: 0, 48 — Cancel the underline 1, 49 — mode Set the underline mode (1 2, 50 — point thick) Set the underline mode
(2 point thick) Parameter range 0 ÿ n ÿ 2, 48 ÿ n ÿ 50 The default value supports all models	
	n = 0
Precautions	The printer can underline all characters (including spaces to the right of the characters), except for whitespace set by HT. The printer cannot underline characters that are rotated 90° clockwise and reverse-white characters. When the underline mode is released by setting the value of n to 0 or 48, the following data is not underlined, and the thickness of the underline set before releasing the underline mode does not change. The default underline thickness is 1 point. Changing the character size does not affect the current thickness of the underline. Using ESC ! can also set or cancel the underline mode. Note, however, that the last received command is valid.
Example of use	1b 40 1b 2d 01 30 31 32 0d 0a 1b 40 1b 2d 02 30 31 32 0d 0a 1b 40 1b 2d 00 30 31 32 0d 0a

Set and cancel 90° rotation printing

Command name setting, cancel 90° clockwise rotation printing	
instruction code	ASCII: ESC V n Decimal: 27 86 n Hexadecimal: 1B 56 n Set or cancel 90° rotation
Function description	printing. When n is equal to 0 or 48, 90° rotation printing is released. When n is equal to 1 or 49, set 90° rotated printing.
Parameter range 0 ÿ n ÿ 1, 48 ÿ n ÿ 49 Default value supports all	
models	n = 0
Precautions	When underline mode is set, the printer does not underline characters rotated 90° clockwise. In the 90° clockwise rotation mode, the directions of the double height and double width commands to enlarge the characters are opposite to the direction of the double height and double width commands to enlarge the characters in the general mode. When ESC @, printer reset, power off, the setting of this command is invalid
Example of use	1b 40 1b 56 01 30 31 32 0d 0a 30 31 32 0d 0a

Set print alignment

Command name set print alignment (left, center, right)	
instruction code	ASCII: ESC an Decimal: 27 97 n Hexadecimal: 1B 61 n All
Function description	data in a row is aligned, and the meaning of n is as follows: n Mode 0, 48 Left 1, 49 Center 2, 50 Right Parameter Range 0
ÿ n ÿ 2 or 48 ÿ n ÿ 50 Default Supported Models All Models Notes	
	n = 0
	When ESC @, printer reset, power off, the setting of this command is invalid
Example of use	1B 40 1B 61 02 30 31 32 0D 0A 1B 40 1B 61 01 30 31 32 0D 0A 1B 40 1B 61 00 30 31 32 0D 0A

Set and cancel bold printing

Command name setting, cancel bold print	
instruction code	ASCII: ESC En Decimal: 27 69 n Hex: 1B 45 n
Function description	Sets or cancels the bold print mode. When the least significant bit of n is 0, the bold print mode is released. When the least significant bit of n is 1, the bold print mode is set.
When the parameter range 0 ÿ n ÿ 255	
Default	n = 0
Support Models All Models	
Precautions	The least significant bits of the allowed use of n Only this command and ESC ! set and clear bold print mode in the same way. When this command and ESC ! Be careful when using at the same time. When ESC @, printer reset, power off, the setting of this command is invalid
Example of use	1b 40 1b 45 01 30 31 32 0d 0a 1b 40 1b 45 00 30 31 32 0d 0a 1b 40 1b 45 01 B0 AE C9 CF D7 D4 BC BA 0D 0A 1b 40 1b 45 00 B0 AE C9 CF D7 D4 BC BA 0D 0A

Set and cancel overlay printing

Command name setting, cancel overlapping (bold) printing	
instruction code	ASCII: ESC G n Decimal: 27 71 n Hex: 1B 47 n
Function description	Sets or cancels overlay printing mode. When the least significant bit of n is 0, the overlapping (bold) printing mode is released. When the least significant bit of n is 1, sets the overlay (bold) print mode.
Parameter range 0 ÿ n ÿ 255	
Default	n = 0
Support Models All Models	
Precautions	The least significant bits of n are allowed. The printer output is the same only in overlay mode and bold mode. When ESC @, printer reset, power off, the setting of this command is invalid
Example of use	1b 40 1b 47 00 30 31 32 0d 0a 1b 40 1b 47 01 30 31 32 0d 0a 1b 40 1b 47 01

	B0 AE C9 CF D7 D4 BC BA 0D 0A

Set Kanji mode

Command name to set Chinese character mode	
instruction code	ASCII: FS & Decimal: 28 38 Hex: 1C 26 Function description Select
Chinese character mode Parameter range No default	
value No supported models All models	
Precautions	When the Kanji character mode is selected, the printer processes all Kanji codes, two bytes at a time. The Chinese character codes are processed in the order of the first byte and the second byte.
Example of use	1b 40 1C 26 B0 AE C9 CF D7 D4 BC BA 0d 0a 1C 2E B0 AE C9 CF D7 D4 BC BA 0d 0a

Cancel Kanji mode

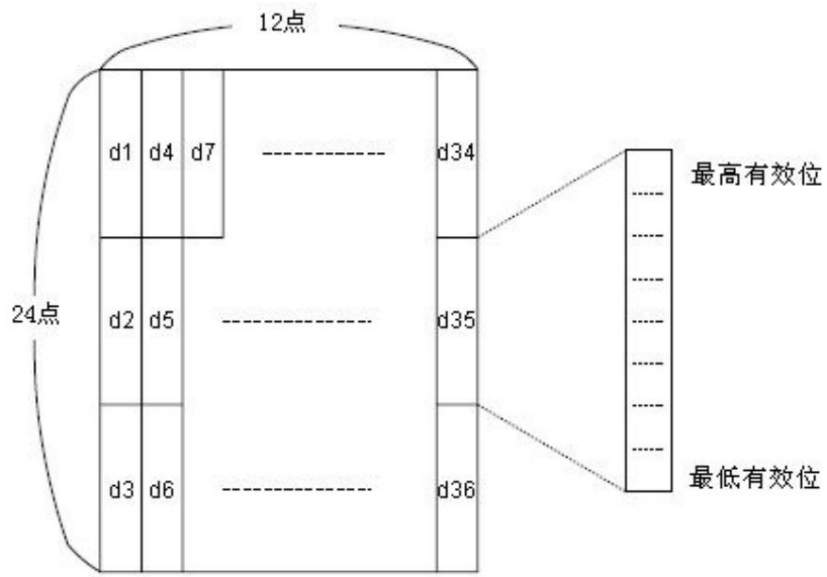
Command name cancel Chinese character mode	
instruction code	ASCII: FS. Decimal: 28 46 Hex: 1C 2E Function description Cancel
Chinese character mode Parameter range No default	
value No supported models All models	
Precautions	When the Chinese character mode is not selected, all character codes are treated as ASCII codes, one character at a time characters are
processed. Example of use none	

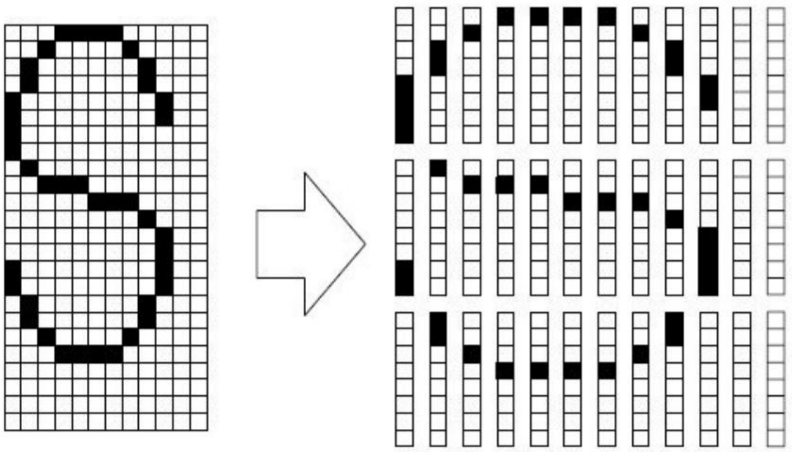
Select and cancel user-defined character set

Command name select or cancel user-defined character set	
instruction code	ASCII: ESC % n Decimal: 27 37 n Hexadecimal: 1B 25 n Select or cancel user-defined character
Function description	set When the least significant bit of n is 0, cancel the user-defined character set. When the least significant bit of n is 1, the user-defined character set is selected. Parameter range 0 ÿ n ÿ 255 Default value
Supported models All models Notes When canceling the user-defined character set, the internal character set	
is automatically selected. 0 Example of use none	

Define user-defined character set

Instruction name defines user-defined character set	
instruction code	ASCII: ESC & y c1 c2 [x1 d1 ... d (yx1)] ... [xk d1 ... d(yxk)] Decimal: 27 38 y c1 c2 [x1 d1 ... d(yx1)] ... [xk d1 ... d(yxk)] hex: 1B 26 y c1 c2 [x1 d1...d(y x1)]...[xk d1...d(yxk)] Define user-defined characters. y specifies the number of bytes in the vertical direction. c1 specifies the starting character encoding,
Function description	and c2 specifies the ending character encoding. xk specifies the number of points in the horizontal direction. The range of xy corresponds to the internal font. If the font of 6*12 is selected, then y = 2, 0 ÿ x ÿ 6 If the font of 12*24 is selected, then y= 3, 0 ÿ x ÿ 12
parameter range	32 ÿ c1 ÿ c2 ÿ 126 0 ÿ d1 ... d(y*xk) ÿ255 None
Default	
Support Models All Models	
Precautions	The range of character codes that can be defined: ASCII codes (95 characters) from <20>H to <7E>H. Consecutive character encodings that define multiple characters. When only one character is required, let c1 = c2. d is the point data for the character. Dot mode starts horizontally from the left. The remaining dots on the right are blank. The data defining the user-defined character is (y*x) bytes. Set the corresponding bit to print dots to 1 or to not print dots to 0. This command can define different user-defined character patterns for each font type. Use ESC ! to set the font. User-defined characters and downloaded bitmap cannot be defined at the same time. When the command is executed, download the bitmap Cleared. User-defined characters are cleared in the following cases: ESC @ is executed. Execute GS*. Execute ESC?. Printer reset or power off. Illustration: When setting font A (12 24).





d1= <0F>H d4 = <30>H d7 = <40>H . . . .
d2 = <03>H d5 = <80>H d8 = <40>H . . . .
d3 = <00>H d6 =<00>H d9 = <20>H . . . .

Example of use

ÿy = 2
1B 40
1b 26 02 20 20 06 FF FF FF FF FF FF FF FF FF FF FF FF
1b 25 01
20 20 0D 0A
1b 3f 20
30 20 30 20 0d 0a
ÿy = 3
1B 40
1b 26 03 20 20 06 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
1b 25 01
20 20 0D 0A

	1b 3f 20 30 20 30 20 0d 0a

Cancel user-defined characters

Command name cancels user-defined characters	
instruction code	ASCII: ESC ? n Decimal: 27 63 n Hexadecimal: 1B 3F n
Function description Cancel the user-defined characters encoded by n	
Parameter range 32 ÿ n ÿ 126	
Default None	
All models supported	
Precautions	This command terminates using the style defined for the character encoding specified by n. in the user After the custom character is canceled, it is printed in the corresponding mode of the internal character. In fonts selected with ESC !, this command deletes the style defined for the specified encoding. If a user-defined character is not defined, the printer ignores this command.
Example of use none	

Select international character set

Command name select international character set	
instruction code	ASCII: ESC R n Decimal: 27 82 n Hexadecimal: 1B 52 n
Function description	Select the value of n according to the table below to set the international character set n character set 0 America 1 France 2 Germany 3 U.K 4 Denmark I 5 Sweden 6 Italy 7 Spain I 8 Japan 9 Norway 10 Denmark II 11 Spain II 12 Latin America 13 South Korea 14 Slovenia 15 China
Parameter range 0 ÿ n ÿ 15	

Default	0
Support Models All Models Notes	
Example of use	1B 40 1B 52 00 20 21 22 23 24 25 26 27 28 29 2A 2B 2C 2D 2E 2F 30 31 32 33 34 35 36 37 38 39 3A 3B 3C 3D 3E 3F 40 41 42 43 44 45 46 47 48 49 4A 4B 4C 4D 4E 4F 50 51 52 53 54 55 56 57 58 59 60 6A 6B 6C 6D 6E 6F 70 71 72 73 74 75 76 78 79 7A 7B 7C 7D 7E 0D 0A

Select character code page

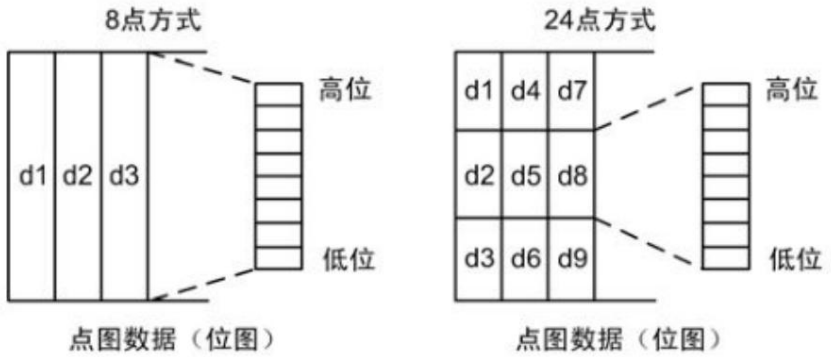
Command name select character code page	
instruction code	ASCII: ESC tn Decimal: 27 116 n Hex: 1B 74 n
Function description	select n from character code page N code page 0 CP437 [US, European Standard] 1 KataKana [Katakana] 2 CP850 [Multilingual] 3 CP860 [Portugal] 4 CP863 [Canada-French] 5 CP865 [Nordic] 6 WCP1251 [Slavic] 7 CP866 Slav 2 8 MIK [Slavic/Bulgarian] 9 CP755 [Eastern Europe, Latvia 2] 10 [Iran, Persia] 11 reserved 12 reserved 13 reserved 14 reserved 15 CP862 [Hebrew] 16 WCP1252 [Latin 1] 17 WCP1253 [Greece] 18 CP852 [Latin 2] 19 CP858 [Multilingual Latin 1 + Euro] 20 Iran II [Persian] 21 Latvia 22 CP864 [Arabic] twenty three ISO-8859-1 [Western Europe] 24 CP737 [Greece]

	25 WCP1257 [Baltic Sea] 26 Thai 27 CP720 [Arabic] 28 CP855 29 CP857 [Turkish] 30 WCP1250 [Central Europe] 31 CP775 32 WCP1254 [Turkish] 33 WCP1255 [Hebrew] 34 WCP1256 [Arabic] 35 WCP1258 [Vietnamese] 36 ISO-8859-2 [Latin 2] 37 ISO-8859-3 [Latin 3] 38 ISO-8859-4 [Baltic] 39 ISO-8859-5 [Slavic] 40 ISO-8859-6 [Arabic] 41 ISO-8859-7 [Greek] 42 ISO-8859-8 [Hebrew] 43 ISO-8859-9 [Turkish] 44 ISO-8859-15 [Latin 9] 45 [Thai 2] 46 CP856 47 Cp874 255 GBK2312
Parameter range	0 ÿ n ÿ 255
Default value	0
Supported models	
All models	
Notes	
Example of use	1B 40 1C 2E 1B 74 00 80 81 82 83 84 85 86 87 88 89 8A 8B 8C 8D 8E 8F 90 91 92 93 94 95 96 97 98 9A 9B 9C 9D 9E 9F A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 AA AB AC AD AE AF B0 B1 B2 B3 B4 B5 B6 B7 B8 B9 BA BB BC BD BE BF C0 C1 C2 C3 C4 C5 C6 C7 C8 C9 CA CB CC CD CE CF D0 D1 D2 D3 D4 D5 D6 D7 D8 D9 DA DB DC DD DE DF E0 E1 E2 E3 E4 E5 E6 E7 E8 E9 EA EB EC ED EE EF F0 F1 F2 F3 F4 F5 F6 F7 F8 F9 FA FB FC FD FE FF 0D 0A

ÿGraphic print command

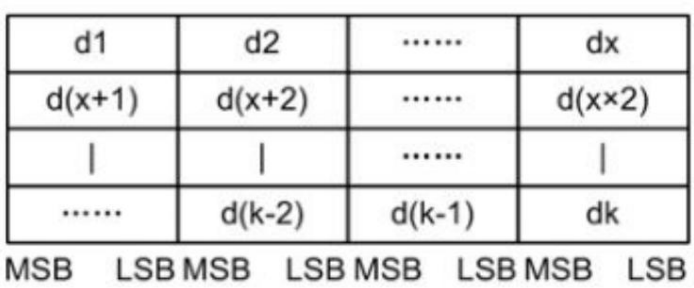
Graphic vertical modulo data filling

Instruction Name Graphic Vertical Modulus Data Fill	
instruction code	ASCII: ESC * m Hl Hh [d]k Decimal: 27 42 m Hl Hh [d]k Hexadecimal: 1B 2A m Hl Hh [d]k Print longitudinal modulo image data,
Function description	the meaning of the parameters is as follows: m is the point Figure Format: m mode horizontal scale vertical scale 0 8 dots single density × 2 × 3 1 8 dots double density × 1 × 3 32 24 dots single density × 2 × 1 33 24 dots double density × 1 ×1 Hl, Hh are the number of dots in the horizontal direction (Hl+256×Hh) [d]k is the dot image data k is used to indicate the number of bytes of the dot image data, and does not participate in the transmission
parameter range	XX58: m = 0, 1, 32, 33 1 ÿ Hl + Hh × 256 ÿ 384 0 ÿ d ÿ 255 k = Hl + Hh × 256 (when m = 0, 1) k = (Hl + Hh × 256) × 3 (when m = 32, 33) XX80: m = 0, 1, 32, 33 1 ÿ Hl + Hh × 256 ÿ 576 0 ÿ d ÿ 255 k = Hl + Hh × 256 (when m = 0, 1) k = (Hl + Hh × 256) × 3 (when m = 32, 33)
Default None Supported	
Models All Models	
Precautions	[d]k When the corresponding bit is 1, it means that the dot is printed, and when the corresponding bit is 0, it means that the part of the dot that is beyond the print area in the horizontal direction of the image will be ignored. The relationship between the dot image data and the printing effect is as follows:

	 This command only fills the print buffer. The printing of the image will start after receiving the print command. After the image is printed, the print buffer will be emptied. If the height of the image to be printed is large, it can be divided into several strips with a height of 8 (m = After 0, 1) or 24 (m = 32, 33) dots are printed with the fill graphics data, you can continue to fill in other information, so that the graphics and other information will be printed together with the fill dot map, generally use ESC J (n = 24) command to print, you can also use the LF command to print, but the LF command will cause a paper feeding operation (feeding according to the line spacing), so that the multi-line image is discontinuous, you can set the line spacing to 0, it will not be too much paper feed. (The dot matrix printer will be offset at the start, if there is a disconnection in the middle, please send data continuously)
Example of use	1B 40 1b 2a 00 0C 00 FF FF FF FF FF FF FF FF FF FF FF FF FF 1B 33 00 0A

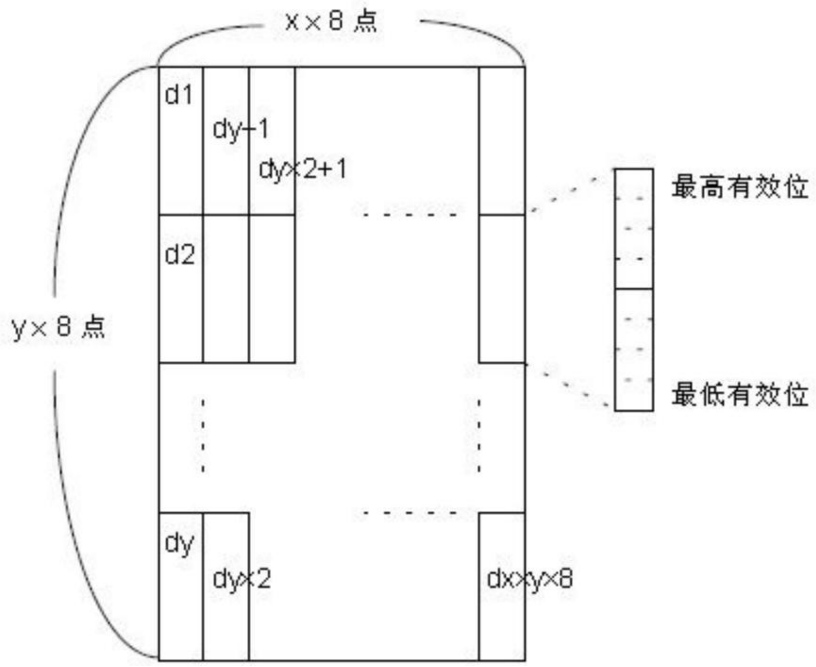
Picture horizontal modulo data printing

Command name Picture horizontal modulo data print	
instruction code	ASCII: GS v 0 Decimal: 29 118 48 m xL xH yL yH [d]k Hexadecimal: 1D 76 30 m xL xH yL yH [d]k Print horizontal modulo image data,
Function description	the meanings of the parameters are as follows: m is the bit Diagram way: m mode horizontal scale vertical scale 0,48 normal × 1 1,49 times width × 2 2,50 times height × 1 3,51 times width and height × 2 × 2 xL, xH is the number of bytes in the horizontal direction (xL + xH × 256) yL, yH are the number of points in the vertical direction (yL + yH × 256) [d]k is the dot image data k is the number of bytes of the dot image data, k is used for illustration and does not need to be transmitted
parameter range	XX58: 0 ÿ m ÿ 3; 48 ÿ m ÿ 51 1 ÿ xL + xH×256 ÿ 48

	0 ÿ yL ÿ255, 0 ÿ yH ÿ255 0 ÿ d ÿ 255 k = (Hl + Hh×256)×(yL + yH×256) XX80: 0 ÿ m ÿ 3; 48 ÿ m ÿ 51 1ÿ xL + xH×256 ÿ 72 0 ÿ yL ÿ 255, 0 ÿ yH ÿ 255 0 ÿ d ÿ 255 k = (Hl + Hh×256)×(yL + yH×256)
Default None Supported	
Models All Models	
Precautions	[d]k When the corresponding bit is 1, it means that the dot is printed. When the corresponding bit is 0, it means the dot is not printed. If the number of horizontal bytes of the image exceeds the printing area, the excess part will be ignored. When this command is executed, the paper is fed according to the size of the image. Not affected by the line spacing settings of ESC 2 and ESC 3 ring After this command is executed, the printing coordinates are reset to the left margin position, and the image content is cleared. The relationship between the bitmap data and the printing effect is as follows:  This command has a print function, printing while transmitting data, no need to use the print command
Example of use	1B 40 1d 76 30 00 03 00 09 00 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF

Define download bitmap

Command name definition download bitmap	
instruction code	ASCII: GS * xy d1...d(x×y×8) Decimal: 29 42 xy d1...d(x×y×8) Hexadecimal: 1D 2A xy d1...d(x× y×8)
Function description	Specify the number of points with x and y to define the downloaded bitmap. x specifies the number of points in the horizontal direction as 8*x. y specifies that the number of points in the vertical direction is
parameter range	8*y. 1 ÿ x ÿ 255 1 ÿ y ÿ 48 x*y ÿ 1536 0 ÿ d ÿ 255
Defaults	without

All models supported	
Precautions	If x*y is outside the specified range, the command is prohibited. d represents bitmap data. Data (d) specifies that the print bit is 1 and the unprintable bit is 0. The downloaded bitmap definition is cleared in the following cases: ESC @ is executed. Execute ESC &. Printer reset or power off. The relationship between the downloaded bitmap and the print data is shown in the figure below 
Example of use	1B 40 1D 2A 03 03 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF 1D 2F 00

Print the downloaded bitmap

Command name print download bitmap	
instruction code	ASCII: GS/m Decimal: 29 47 m Hexadecimal: 1D 2F m Print
Function description	the downloaded bitmap with the mode specified by m

m mode 0, 48
normal1, 49 times
wide2, 50 times
high

	3, 51 times the width and height
parameter range	0 ÿ m ÿ 3 48 ÿ m ÿ 51
Default None Supported	
Models All Models	
Precautions	If bitmap data is not defined, this command is ignored. In standard mode, this command is only valid when there is no data in the print buffer. This command is invalid in print mode (bold, overlap, underline, character size, or reverse print), except in upside-down print mode. If the downloaded bitmap to be printed exceeds the print area, the excess data will not be printed.
Example of use none	

define **NV** bitmap

Instruction Name Definition NV Bitmap	
instruction code	ASCII: FS qn [xL xH yL yH d1...dk]1...[xL xH yL yH d1...dk]n Decimal: 28 113 n [xL xH yL yH d1...dk]1.. .[xL xH yL yH d1...dk]n Hexadecimal: 1C 71 n [xL xH yL yH d1...dk]1...[xL xH yL yH d1...dk]n The value of n defines the NV bitmap. n specifies the number of NV bitmaps defined. xL,
Function description	xH Specify the number of points in the horizontal direction for the NV bitmap in the definition as (xL+xH*256)*8. yL, yH Specifies the number of points in the vertical direction for the NV bitmap in the definition (yL+yH*256)*8.
parameter range	1 ÿ n ÿ 255 0 ÿ xL ÿ 255 0 ÿ xH ÿ 3 (1 ÿ (xL+xH*256) ÿ 1023) 0 ÿ yL ÿ 255) 0 ÿ yH ÿ 1 (1 ÿ (yL+yH*256) ÿ 288) 0 ÿ d ÿ 255) k = (xL+xH*256)*(yL+yH*256)*8 Data area defined by sum meter = 64K bytes Default value
No supported models All models	
Precautions	Frequent write commands can damage NV memory. Therefore, it is recommended to store NV for one day The device performs no more than 10 writes. After the process of placing an image into NV memory, the printer performs a hardware reset operation. do. Therefore, the user-defined characters and the downloaded bitmap should be defined after completing this command. The printer clears the receive and print buffers and resets to the mode that was in effect at power up. (Hardware reset interface is not supported) This command cancels all NV bitmaps defined by this command. Mechanical operations (including when Initialize the print head position when the cover is open, use the feed button to feed paper, etc.).

During the processing of this command, the printer is busy and stops while writing data to the user NV memory Receive data. Therefore, data transfer, including real-time commands, is prohibited during the execution of this command.

An NV bitmap is a bitmap defined in non-volatile memory. Define FS p with FS q print.

In standard mode, this command is only valid at the beginning of a line. The command is valid only after the 7 bytes <FS yH> of the command are processed normally. When the data volume exceeds the left side of the range defined by xL, xH, yL, yH, the printer will The range defined by xL, xH, yL, yH is processed outside the defined range.

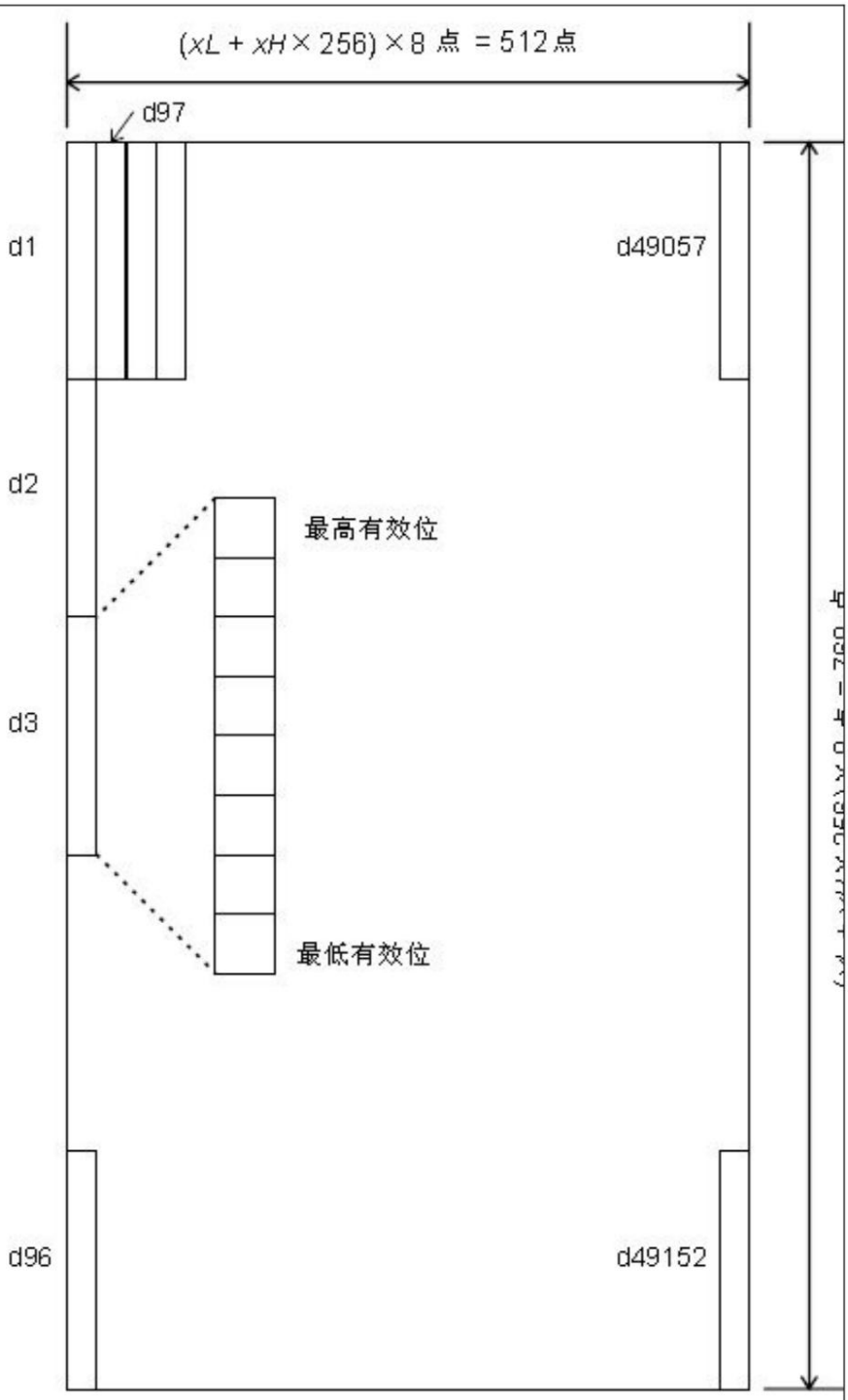
In the first set of bitmaps, when any parameter in xL, xH, yL, yH exceeds the defined range, the command is prohibited. In a group of bitmaps other than the first group, when the printer encounters xL, xH, yL, yH beyond the defined range, it stops processing the command and starts to write the NV image. At this point, NV bitmaps that have not yet been defined are disabled (undefined,) but any previously defined NV bitmaps are still valid.

d represents definition data. In data (d), a 1 bit specifies a point to be printed and a 0 bit specifies a point not to be printed. This command defines n as the number of NV bitmaps. The number increases sequentially from bitmap 01H. So the first data group [xL xH yL yH d1...dk] is the NV bitmap 01H and the last data group [xL xH yL yH d1...dk] is the NV bitmap n. The total is consistent with the number of NV bitmaps set by the FS p command. The definition data of an NV bitmap consists of [xL xH yL yH d1...dk]. Therefore, when n=1 when there is only one NV bitmap, the printer processes the data set [xL xH yL yH d1...dk] only once. The printer uses ([data: (xL+xH *256)*(yL+yH*256)*8]+[header:4]) bytes of NV memory.

The defined area in this printer is 192K bytes (maximum). This command can define several bits image, but cannot define a bitmap whose total data capacity [bitmap data + header] exceeds 192K bytes.

Even if ASB is set, the printer does not transmit ASB status or perform status detection during processing of this command. Once an NV bitmap is defined, it cannot be deleted by executing the ESC @ command, reset, or power off. This command only executes the definition of NV bitmap and does not execute printing. NV bitmap printing is done through FS p command is executed.

Graphic: When xL = 64, xH = 0, yL = 96, yH = 0



Example of use	1B 40 1C 71 01 03 00 03 00 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF 1C 70 01 00

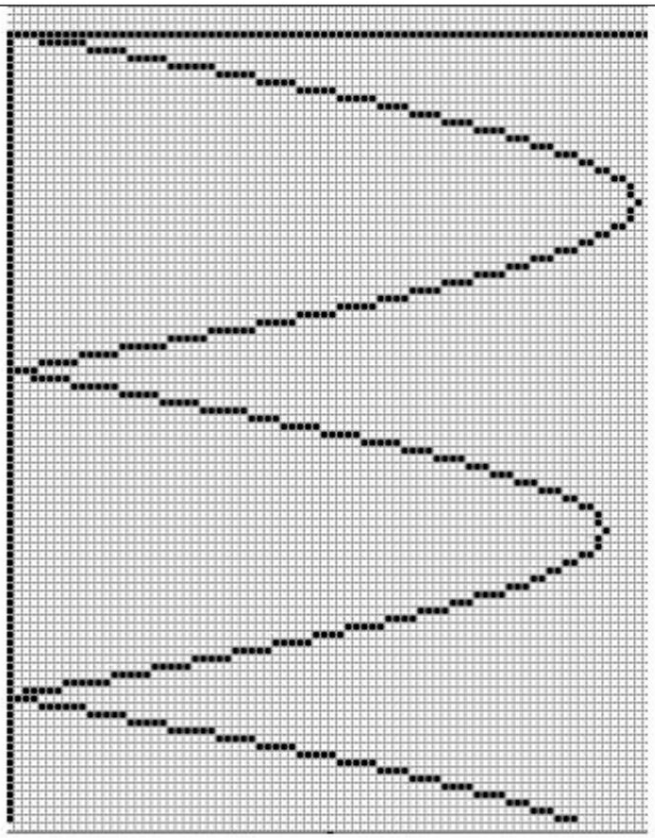
print **NV** bitmap

command name print	NV bitmap

<table>
<tr><td>instruction code</td><td>ASCII: FS pnm Decimal: 28 112
nm Hexadecimal: 1C 70 nm Print
NV bitmap n with the mode</td></tr>
<tr><td>Function description</td><td>specified by m
<table><tr><td>m mode 0, 48</td></tr><tr><td>normal1, 49 times</td></tr><tr><td>wide2, 50 times</td></tr><tr><td>high3, 51 times</td></tr><tr><td>wide, double height</td></tr></table></td></tr>
<tr><td>parameter range</td><td>0 ÿ m ÿ 3
48 ÿ m ÿ 51
1 ÿ n ÿ 255</td></tr>
<tr><td>Default None Supported</td><td></td></tr>
<tr><td>Models All Models</td><td></td></tr>
<tr><td>Precautions</td><td>n is the number of NV bitmaps (defined with the FS q command).
m specifies the bitmap mode.
An NV bitmap is a bitmap defined in non-volatile memory. Define FS p with FS q print
This command is invalid when the specified NV bitmap does not exist. In standard mode, this command only works when there is no data in the print buffer.
This command is not affected by print mode (bold print, overlap, underline, character size, highlighting print or character 90), except for upside-down print modes such as rotation. If the downloaded bitmap to be printed exceeds one line, the excess data will not be printed. In normal and double-width modes, this command feeds n points (n is NV bitmap height), in double-height and quadruple size modes (this command feeds 2n points, n is NV bitmap height), and ESC The line spacing set by 2 or ESC 3 is irrelevant. After printing the bitmap, this command sets the print position at the beginning of a line, and presses
Common data</td></tr>
<tr><td>processing usage examples none</td><td></td></tr>
</table>

Print line segments in horizontal position (curve print command)

<table>
<tr><td>Command name horizontal position print line segment (curve print command)</td></tr>
<tr><td>instruction code</td><td>ASCII: GS'n x1sL x1eH x1eL x1eH ...xnsL xnsH xneL xneH
Decimal: 1D 27 n x1sL x1eH x1eL x1eH ...xnsL xnsH xneL xneH Hexadecimal: 29 39 n x1sL x1eH x1eL x1eH ...xnsL xnsH xneL xneH The print magnification is shown below: Each horizontal curve segment can be</td></tr>
<tr><td>Function description</td><td>viewed as Consists of these points with segment length 1. To print n lines of horizontal line segments, use this command continuously to print out the desired curve.</td></tr>
</table>



xksL : the low-order horizontal coordinate of the starting point of the K-

line; xksH : the high-order horizontal coordinate of the starting point of

the K-line; xkeL : the low-order horizontal coordinate of the ending point of the

K-line; xkeH : the high-order horizontal coordinate of the ending point of the K-line;

The coordinate start position is usually the left side of the print area. The minimum coordinate coordinate is (0,0), the maximum abscissa value is 383, and the xkeL+xkeH*256 lines of data can be arranged in different order within the specified range;

```
Char SendStr[8];
Char SendStr2[16];
Float i;
Short y1,y2,y1s,y2s; //
Print the Y axis (a line)
SendStr[0]=0x1D;
SendStr[1]=0x27;
SendStr[2]=1; // one line
SendStr[3]=30
SendStr[4]=0; //Start point
SendStr[5]=104;
SendStr[6]=1; //End point
PreSendData(SendStr,7);

//Print curve
```

```
SendStr[0]=0x1D;
SendStr[1]=0x27;
SendStr[2]=3;          //Three lines:X-axis,sin and cos function curveThree lines:
X axis, sin and cos
                                function
SendStr[3]=180; SendStr[4]=0; // X-axis position
SendStr[5]=180; SendStr[6]=0;
for(i=1;i<1200;i++)
 {
    y1=sin(i/180*3.1416)*(380-30)/2+180; //Calculate sin function coordinates
    y2=cos(i/180*3.1416)*(380-30)/2+180; // Calculate cos function coordinates
    If(i==1){y1s=y1;y2s=y2;}
    PreSendData(SendStr,7);

    If(y1s<y1) {

      PreSendData(&y1s,2); //sin function at the start of the line
      PreSendData(&y1,2); //sin function at the end of the line }

     Else
     {
      PreSendData(&y1,2); //sin function at the start of the line
      PreSendData(&y1s,2); //sin function at the end of the line }

     If(y2s<y2) {

      PreSendData(&y2s,2); //cos function at the start of the line
      PreSendData(&y2,2); //cos function at the end of the line }

     Else
     {
      PreSendData(&y2,2); //cos function at the start of the line
      PreSendData(&y2s,2); //The cos function is at the end of the line }
    y1s=y1; //When printing enters the next line, the abscissa of the sin function
    curve starting point y2s=y2; //When printing enters the next line, the cos function
    Curve start abscissa }
```

Parameter range	0ÿnÿ8
Default value	No supported
Portable printer	Notes When
printing one point,	xkeL=xksL Example of use , xkeH=xksH

1d 27 01 00 00 00 00

1d 27 01 01 00 0f 00 1d 27 01 10 00 1f 00
1d 27 01 20 00 2c 00 1d 27 01 2d 00 3a 00
1d 27 01 3b 00 44 00 1d 27 01 45 00 4c 00
1d 27 01 4d 00 54 00 1d 27 01 55 00 5c 00
1d 27 01 5d 00 63 00 1d 27 01 64 00 6a 00
1d 27 01 6b 00 71 00 1d 27 01 72 00 77 00
1d 27 01 78 00 7d 00 1d 27 01 7e 00 84 00
1d 27 01 85 00 8a 00 1d 27 01 8b 00 91 00
1d 27 01 92 00 97 00 1d 27 01 98 00 9d 00
1d 27 01 9e 00 a3 00 1d 27 01 a4 00 a9 00
1d 27 01 aa 00 af 00 1d 27 01 b0 00 b4 00
1d 27 01 b5 00 b9 00 1d 27 01 ba 00 bf 00
1d 27 01 c0 00 c4 00 1d 27 01 c5 00 c9 00
1d 27 01 ca 00 cf 00 1d 27 01 d0 00 d4 00
1d 27 01 d5 00 d8 00 1d 27 01 d9 00 dc 00
1d 27 01 dd 00 df 00 1d 27 01 e0 00 e3 00
1d 27 01 e4 00 e6 00 1d 27 01 e7 00 e9 00
1d 27 01 ea 00 ec 00 1d 27 01 ed 00 ef 00
1d 27 01 f0 00 f1 00 1d 27 01 f2 00 f3 00
1d 27 01 f4 00 f5 00 1d 27 01 f6 00 f7 00
1d 27 01 f8 00 f8 00 1d 27 01 f9 00 fa 00
1d 27 01 fb 00 fb 00 1d 27 01 fc 00 fd 00
1d 27 01 fe 00 fe 00 1d 27 01 ff 00 ff 00
1d 27 01 00 01 00 01 1d 27 01 01 01 01 01
1d 27 01 02 01 02 01 1d 27 01 03 01 03 01
1d 27 01 04 01 04 01 1d 27 01 05 01 05 01
1d 27 01 06 01 06 01 1d 27 01 06 01 06 01
1d 27 01 07 01 07 01 1d 27 01 07 01 07 01
1d 27 01 07 01 07 01 1d 27 01 07 01 07 01
1d 27 01 07 01 07 01 1d 27 01 06 01 06 01
1d 27 01 06 01 06 01 1d 27 01 05 01 05 01
1d 27 01 04 01 04 01 1d 27 01 04 01 04 01
1d 27 01 03 01 03 01 1d 27 01 02 01 02 01
1d 27 01 00 01 00 01 1d 27 01 ff 00 ff 00
1d 27 01 fe 00 fe 00 1d 27 01 fc 00 fd 00
1d 27 01 f9 00 fa 00 1d 27 01 f8 00 f8 00
1d 27 01 f6 00 f7 00 1d 27 01 f4 00 f5 00
1d 27 01 f2 00 f3 00 1d 27 01 f0 00 f1 00
1d 27 01 ed 00 ef 00 1d 27 01 ea 00 ec 00
1d 27 01 e7 00 e9 00 1d 27 01 e4 00 e6 00
1d 27 01 e0 00 e3 00 1d 27 01 dd 00 df 00
1d 27 01 d9 00 dc 00 1d 27 01 d5 00 d8 00
1d 27 01 d0 00 d4 00 1d 27 01 ca 00 cf 00
1d 27 01 c5 00 c9 00 1d 27 01 c0 00 c4 00

1d 27 01 ba 00 bf 00 1d 27 01 b5 00 b9 00
1d 27 01 b0 00 b4 00 1d 27 01 aa 00 af 00
1d 27 01 a4 00 a9 00 1d 27 01 9e 00 a3 00
1d 27 01 98 00 9d 00 1d 27 01 92 00 97 00
1d 27 01 8b 00 91 00 1d 27 01 85 00 8a 00
1d 27 01 7e 00 84 00 1d 27 01 78 00 7d 00
1d 27 01 72 00 77 00 1d 27 01 6b 00 71 00
1d 27 01 64 00 6a 00 1d 27 01 5d 00 63 00
1d 27 01 55 00 5c 00 1d 27 01 4d 00 54 00
1d 27 01 45 00 4c 00 1d 27 01 3b 00 44 00
1d 27 01 2d 00 3a 00 1d 27 01 20 00 2c 00
1d 27 01 10 00 1f 00 1d 27 01 01 00 0f 00
1d 27 01 00 00 00 00 1d 27 01 00 00 00 00
1d 27 01 01 00 0f 00 1d 27 01 10 00 1f 00
1d 27 01 20 00 2c 00 1d 27 01 2d 00 3a 00
1d 27 01 3b 00 44 00 1d 27 01 45 00 4c 00
1d 27 01 4d 00 54 00 1d 27 01 55 00 5c 00
1d 27 01 5d 00 63 00 1d 27 01 64 00 6a 00
1d 27 01 6b 00 71 00 1d 27 01 72 00 77 00
1d 27 01 78 00 7d 00 1d 27 01 7e 00 84 00
1d 27 01 85 00 8a 00 1d 27 01 8b 00 91 00
1d 27 01 92 00 97 00 1d 27 01 98 00 9d 00
1d 27 01 9e 00 a3 00 1d 27 01 a4 00 a9 00
1d 27 01 aa 00 af 00 1d 27 01 b0 00 b4 00
1d 27 01 b5 00 b9 00 1d 27 01 ba 00 bf 00
1d 27 01 c0 00 c4 00 1d 27 01 c5 00 c9 00
1d 27 01 ca 00 cf 00 1d 27 01 d0 00 d4 00
1d 27 01 d5 00 d8 00 1d 27 01 d9 00 dc 00
1d 27 01 dd 00 df 00 1d 27 01 e0 00 e3 00
1d 27 01 e4 00 e6 00 1d 27 01 e7 00 e9 00
1d 27 01 ea 00 ec 00 1d 27 01 ed 00 ef 00
1d 27 01 f0 00 f1 00 1d 27 01 f2 00 f3 00
1d 27 01 f4 00 f5 00 1d 27 01 f6 00 f7 00
1d 27 01 f8 00 f8 00 1d 27 01 f9 00 fa 00
1d 27 01 fb 00 fb 00 1d 27 01 fc 00 fd 00
1d 27 01 fe 00 fe 00 1d 27 01 ff 00 ff 00
1d 27 01 00 01 00 01 1d 27 01 01 01 01 01
1d 27 01 02 01 02 01 1d 27 01 03 01 03 01
1d 27 01 04 01 04 01 1d 27 01 05 01 05 01
1d 27 01 06 01 06 01 1d 27 01 06 01 06 01
1d 27 01 07 01 07 01 1d 27 01 07 01 07 01
1d 27 01 07 01 07 01 1d 27 01 07 01 07 01
1d 27 01 07 01 07 01 1d 27 01 06 01 06 01
1d 27 01 06 01 06 01 1d 27 01 05 01 05 01

1d 27 01 04 01 04 01 1d 27 01 04 01 04 01
1d 27 01 03 01 03 01 1d 27 01 02 01 02 01
1d 27 01 00 01 00 01 1d 27 01 ff 00 ff 00
1d 27 01 fe 00 fe 00 1d 27 01 fc 00 fd 00
1d 27 01 f9 00 fa 00 1d 27 01 f8 00 f8 00
1d 27 01 f6 00 f7 00 1d 27 01 f4 00 f5 00
1d 27 01 f2 00 f3 00 1d 27 01 f0 00 f1 00
1d 27 01 ed 00 ef 00 1d 27 01 ea 00 ec 00
1d 27 01 e7 00 e9 00 1d 27 01 e4 00 e6 00
1d 27 01 e0 00 e3 00 1d 27 01 dd 00 df 00
1d 27 01 d9 00 dc 00 1d 27 01 d5 00 d8 00
1d 27 01 d0 00 d4 00 1d 27 01 ca 00 cf 00
1d 27 01 c5 00 c9 00 1d 27 01 c0 00 c4 00
1d 27 01 ba 00 bf 00 1d 27 01 b5 00 b9 00
1d 27 01 b0 00 b4 00 1d 27 01 aa 00 af 00
1d 27 01 a4 00 a9 00 1d 27 01 9e 00 a3 00
1d 27 01 98 00 9d 00 1d 27 01 92 00 97 00
1d 27 01 8b 00 91 00 1d 27 01 85 00 8a 00
1d 27 01 7e 00 84 00 1d 27 01 78 00 7d 00
1d 27 01 72 00 77 00 1d 27 01 6b 00 71 00
1d 27 01 64 00 6a 00 1d 27 01 5d 00 63 00
1d 27 01 55 00 5c 00 1d 27 01 4d 00 54 00
1d 27 01 45 00 4c 00 1d 27 01 3b 00 44 00
1d 27 01 2d 00 3a 00 1d 27 01 20 00 2c 00
1d 27 01 10 00 1f 00 1d 27 01 01 00 0f 00
1d 27 01 00 00 00 00

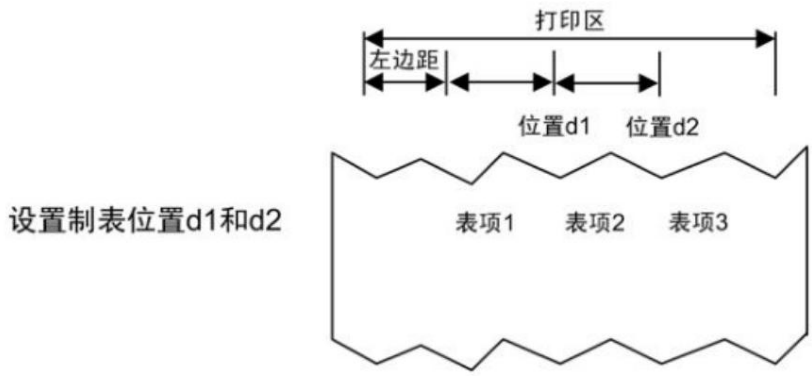
ÿ Tabulation instruction

horizontal tabulation

Command name horizontal tabulation	
instruction code	ASCII: HT Decimal: 9 Hexadecimal: 09 Function Description
Move the print position to the next tab position Parameter	
range No default value No supported models All models	
Precautions	The tab position is set by ESC D. If the tab position is not set (the default is no horizontal tab position), this command will be regarded as an LF command. If the tab position exceeds the printing area, the coordinates will move to the start position of the next line (depending on This line of data is full, print and wrap)

Example of use none	

Set the horizontal tab position

command name	
instruction code	ASCII: ESC D [d]k NUL Decimal: 27 68 [d]k 0 Hexadecimal: 1B 44 [d]k 00 Set the horizontal tab position, the meanings of the
Function description	parameters are as follows: d1 ... dk: horizontal tab position , in units of 8 points, NULL as the terminator
parameter range	XX58: 1 ÿ d ÿ 46 (d1 < d2 < ... dk, 1 ÿ k ÿ 16) XX80: 1 ÿ d ÿ 70 (d1 < d2 < ... dk, 1 ÿ k ÿ 16)
Default value [d]k = 0 (default no horizontal tab position) Supported models	
The tab positions of all models are shown as follows:	
Precautions	 The setting of up to 16 tab positions is supported. Use this command to cancel the previous tab position setting k for illustration purposes, not to transmit [d]k. When NULL is encountered, it is regarded as the end if dk is less than or equal to dk- 1. It is regarded as the end, and the remaining data is treated as ordinary data. The tab position can be switched by HT. When the left margin is changed, the tab position is changed at the same time. When ESC @, printer reset, and power off, the setting of this command is invalid.
Example of use none	

ÿOne-dimensional barcode printing instruction

Set the 1D barcode readable characters (HRI) print position

Command Name Set barcode readable characters (HRI) print position	
instruction code	ASCII: GS H n Decimal: 29 72 n Hex: 1D 48 n Function Description Set the
printing position of barcode readable characters (HRI). The meaning of n parameter is as follows:	

	n Print position 0, 48 Do not print 1, 49 Above the bar code 2, 50 Below the bar code 3, 51 Above and
below the bar code Parameter range 0 ÿ n ÿ 3 or 48 ÿ n	
ÿ 51 @, After the printer is reset and power off, the n=0	
setting of this instruction is invalid.	

Set 1D barcode height

Command name to set the height of 1D barcode	
instruction code	ASCII: GS hn Decimal: 29 104 n Hexadecimal: 1D 68 n Set the height of the
Function description	barcode as n points, the meaning of parameter n is as follows:  高度为 50  高度为 100
Parameter range 1 ÿ n ÿ 255	
Default value Supported models n=64	
All models Notes	

Set 1D barcode width

Command name to set the width of 1D barcode	
instruction code	ASCII: GSwn Decimal: 29 119 n Hexadecimal: 1D 77 n Set
Function description	the barcode unit as n points, the meaning of parameter n is as follows:  宽度为 3  宽度为 4

Parameter range	1 ÿ n ÿ 6
Default	n = 2
Support Models	All Models
Matters needing attention	When ESC @, printer reset, power off, the setting of this command will be invalid.
Example of use	none

Printing 1D barcodes

command name	
instruction code	**(A)** ASCII: GS km [d]k NUL Decimal: 29 107 m [d]k NUL Hex: 1D 6B m[d]k NUL **(B)** ASCII: GS kmn [d]k Decimal: 29 107 mn [d]k Hexadecimal: 1D 6B mn [d]k
Function description	To print a one-dimensional barcode, the meaning of each parameter is as follows: m is the encoding method n is the length of the encoded data, only used in (B) mode, the difference between (A) and (B) instructions is the data segment of (A) terminated with a NULL character, and (B) indicates the length of the data [d]k is barcode data k is the length of the barcode data, it is used for indication and does not need to be transmitted The relationship between the parameters is shown in the following table: (Order **A)**

m	coding system	Barcode data (SP means space)			
		data length	k	character set	data(d)
0	UPC-A	fixed k = 11, 12		0~9	48ÿdÿ57
1	UPC-E	fixed	6ÿkÿ8, k = 11, 12	0~9	48ÿdÿ57 [When k = 7,8,11,12, d1 = 48]
2	JAN13 (EAN13)	fixed k = 12, 13		0~9	48ÿdÿ57
3	JAN8 (EAN8)	fixed k = 7, 8		0~9	48ÿdÿ57
4	CODE39	variable	1ÿkÿ255	0~9, A~Z SP, $, %, +, -,.,/	48ÿdÿ57, 65ÿdÿ90, d = 32, 36, 37, 42, 43, 45, 46, 47
5	ITF (Interleaved 2 of 5)	variable	2ÿkÿ255 (even)	0~9	48ÿdÿ57
6	CODAB	variable	1ÿk	0~9, A~D, a~d	48ÿdÿ57,

	AR (NW-7)			$, +, -, ., /, : 65ÿdÿ68,	97ÿdÿ100, d = 36, 43, 45, 46, 47, 58 (65ÿd1ÿ68, 65ÿdkÿ68, 97ÿd1ÿ100, 97ÿdkÿ100)

(Order **B)**

m	coding system system	Barcode data (SP means space)			
		data length	n	character set	data(d)
65	UPC-A	fixed n = 11, 12		0~9	48ÿdÿ57
66	UPC-E	Fixed	6ÿnÿ8, n = 11, 12	0~9	48ÿdÿ57 [When n = 7,8,11,12, d1 = 48]
67	JAN13 (EAN13)	fixed n = 12, 13		0~9	48ÿdÿ57
68	JAN8 (EAN8)	fixed n = 7, 8		0~9	48ÿdÿ57
69	CODE39	Variable	1ÿnÿ255	0~9, A~Z SP, $, %, +, -, ., /	48ÿdÿ57, 65ÿdÿ90, d = 32, 36, 37, 42, 43, 45, 46, 47
70	ITF (Interleaved 2 of 5)	variable	1ÿnÿ255 (even)	0~9	48ÿdÿ57
71	CODABAR (NW-7)	variable	1ÿnÿ255	0~9, A~D, a~d $, +, -, ., /,:	48ÿdÿ57, 65ÿdÿ68, 97ÿdÿ100, d = 36, 43, 45, 46, 47, 58 (65ÿd1ÿ68, 65ÿdkÿ68, 97ÿd1ÿ100, 97ÿdkÿ100)
72	CODE93	Variable	1ÿnÿ255	00H~7FH	0ÿdÿ127
73	CODE128	Variable	2ÿnÿ255	00H~7FH	0ÿdÿ127
74	UCC/EA	variable	2ÿnÿ255	00H~7FH	0ÿdÿ127

		N128			C1H~C4H(FNC)	d = 193, 194,195,196
parameter range	(A) 0 ÿ m ÿ 6 (B) 65 ÿ m ÿ 74 Default No					
Supported Models	All Models					

Precautions

If the width of the bar code exceeds the printable area, the printer will not execute the bar code printing. When this command is executed, the paper will be fed as needed. It will not be affected by the line spacing settings of ESC 2 and ESC 3, nor will it affect the line spacing settings. This command is not affected by ESC! The character style setting affects the execution of this command, and the print position returns to the print start position. m Parameters 0 ~ 6(A) and 65 ~ 71(B) select the same encoding system, and the printing effect is the same. m Parameters 0 ~ 6(A) When , the barcode data ends with NULL m When parameters are 65 ~ 74(B), the barcode data uses n to represent the data length k for indication, and when you do not need to transmit and print UPCA (m = 0 or 65), you need to pay attention:

Regardless of whether the input data length is 11 or 12, the check digit is automatically inserted or the error correction start character, middle separator, and end character are automatically inserted. When printing UPCE (m = 1 or 66), you need to pay attention: When the data length is 6, System character (NSC) 0 is automatically inserted When the data length is 7, 8, 11 and 12, the first system character (NSC) d1 must be 0

Whether the length of the input data is 6, 7, 8, 11 or 12, the check digit is automatically inserted or corrected.

Whether the length of the input data is 6, 7, 8, 11 or 12, the barcode readable characters (HRI) only display 6 digits of data , excluding system characters (NSC) and check code; The conversion relationship between transmission data and print data is as follows:

传输的数据										打印的数据					
d2	d3	d4	d5	d6	d7	d8	d9	d10	d11	d1	d2	d3	d4	d5	d6
0~9	0~9	0	0	0	-	-	0~9	0~9	0~9	d2	d3	d9	d10	d11	0
0~9	0~9	1	0	0	-	-	0~9	0~9	0~9	d2	d3	d9	d10	d11	1
0~9	0~9	2	0	0	-	-	0~9	0~9	0~9	d2	d3	d9	d10	d11	2
0~9	0~9	3~9	0	0	-	-	-	0~9	0~9	d2	d3	d4	d10	d11	3
0~9	0~9	0~9	1~9	0	-	-	-	-	0~9	d2	d3	d4	d5	d11	4
0~9	0~9	0~9	0~9	1~9	-	-	-	-	5~9	d2	d3	d4	d5	d6	d11

When d6 is 1~9, it should be ensured that d7, d8, d9, d10 are 0, and d11 is 5~9. When the start character and end character are automatically inserted and printed to print EAN13 (m = 2 or 67), you need to pay attention: No matter the input data When the length is 12 or 13, the check digit is automatically inserted or the error correction start character, middle separator, and end character are automatically inserted. When printing EAN8 (m = 3 or 68), you need to pay attention: No matter whether the input data length is 7 or 8, the calibration Check bit automatic insertion or error correction

Automatic insertion of start, middle, and end characters

When printing CODE39 (m = 4 or 69), note that:

When d1 or dn is not the start/end character "*", the encoder automatically inserts "*"

When "*" is encountered in the middle of the data, the encoder regards it as a terminator, and the rest of the data is regarded as a normal number data processing;

Check digit is not automatically calculated and added

When printing ITF25 (m = 5 or 70), note:

Automatic insertion of start and end characters

Check digit is not automatically calculated and added

When printing CODABAR (NW-7) (m = 6 or 71), note that:

The start character and end character will not be inserted automatically and need to be added manually by the user. The range is "A"~"D" or "a" ~ "d"

Check digit is not automatically calculated and added

When printing CODE93 (m = 72), you need to pay attention:

Automatic insertion of start and end characters

Two check codes are automatically calculated and inserted

When setting barcode readable characters (HRI) to print, do not set any HRI word indicating start/end symbol

When setting barcode readable characters (HRI) to print, control characters will be replaced with spaces

When CODE128 (m = 73) is selected:

• Refer to Appendix A, CODE 128 for related information and character sets.

• When using CODE 128, encode as follows:

ÿ The character set must be selected before barcode data (in CODE A, CODE B and CODE C one of).

ÿ Selecting the character set is done by sending the character "{" combined with another character; ASCII code character

"{" is done by sending the character "{" twice in a row.

special characters send data

ASCII code Hexadecimal code Decimal code

Special characters	send data		
	ASCII Hexadecimal Code		
SHIFT	{S	7B,53	123, 83
CODEA	{A	7B,41	123, 65
CODEB	{B	7B,42	123, 66
CODEC	{C	7B,43	123, 67
FNC1	{1	7B,31	123, 49
FNC2	{2	7B,32	123, 50
FNC3	{3	7B,33	123, 51
FNC4	{4	7B,34	123, 52
"{"	{{	7B, 7B	123, 123

[Example] For example, print "No. 123456"

	In this example, the printer first prints "No." with CODE B, followed by the remaining numbers with CODE C: **GS k** 73 10 123 66 78 111 46 123 67 12 34 56  CODE 128: 1b 40 1d 48 02 1d 68 64 1d 77 03 1d 6b 49 0A 7B 42 4E 6F 2E 7B 43 0C 22 38 • If the character set selection is not at the top of the bar code data, the printer will stop at the point of this command and treat the rest of the data as normal data. • If "{" and the character following it are not the combination specified above, the printer stops This command is processed, and the rest of the data is treated as normal data. • If the characters received by the printer are not barcode character set data, the printer stops where this command is made. and treat the rest of the data as normal data. • When the printer prints HRI characters, shift characters and character set selection data are not printed. • HRI characters for functional characters are not printed. • HRI characters for control characters (<00>H to <1F>H and <7F>H) are also not printed; <Other> Be sure to ensure the left and right gaps of the barcode. The gap varies by barcode type.
Example of use	1b 40 1d 48 02 1d 68 64 1d 77 03 30 0D 0A 1d 6b 00 30 31 32 33 34 35 36 37 38 39 31 00 31 0D 0A 1d 6b 01 30 31 32 33 34 35 36 37 38 39 31 00 32 0D0A 1d 6b 02 30 31 32 33 34 35 36 37 38 39 31 32 00 33 0D 0A 1d 6b 03 30 31 32 33 34 35 36 37 00 34 0D 0A 1D 6B 04 30 31 32 41 42 20 24 25 2B 2D 2E 2F 00 35 0D 0A 1d 6b 05 30 31 32 33 34 35 36 37 38 39 31 32 00

	36 0D 0A 1d 6b 06 2D 31 32 42 24 2B 2D 2E 00 1d 6b 06 43 31 32 33 34 35 36 34 38 39 00 36 35 0D 0A 1d 6b 41 0c 31 32 33 34 35 36 37 38 39 30 31 32 36 36 0D 0A 1d 6b 42 0c 30 32 33 34 35 36 30 30 30 30 38 39 36 37 0D 0A 1d 6b 43 0c 30 32 33 34 35 36 30 30 30 30 38 39 36 38 0D 0A 1d 6b 44 08 30 32 33 34 35 36 30 30 36 39 20 20 4e 4f 20 24 25 2b 2d 2e 2f 31 32 33 34 35 36 30 30 0D 0A 1d 6b 45 11 4e 4f 20 24 25 2b 2d 2e 2f 31 32 33 34 35 36 30 30 37 30 20 20 20 30 32 33 34 35 36 30 30 C5 BC CA FD 0D 0A 1d 6b 46 09 30 31 32 33 34 35 36 30 30 37 31 0d 0a 1d 6b 47 05 32 33 34 35 36 37 32 0d 0a 1d 6b 48 0b 32 33 34 35 36 41 42 2e 2f 2b 2c 37 33 0d0a 1d 6b 49 0A 7B 42 4E 6F 2E 7B 43 0C 22 38

ÿQR code printing instruction

Set the module type of **QR** code

Command name	Set the module type of QR code
instruction code	ASCII: GS (k pL pH cn fn n Decimal: 29 40 107 pL pH cn fn n Hexadecimal: 1D 28 6b pL pH cn fn n Function Description Set the module type of QR code
parameter range	pL=3, pH=0 cn=49 fn=67 0 ÿ n ÿ 16
Default	n=3
Support Models	All Models
Notes	Set the type of QR code graphic module to [n dots × n dots]. Example of
use none	

Set the error correction level error of the **QR** code

Command Name	Set Error Correction Level Error of QR Code
instruction code	ASCII: GS (Decimal: k pL pH cn fn n 29 40 107 pL pH cn fn n Hexadecimal: 1D 28 6b pL pH cn fn n
Function Description	Set the error correction level error of QR code
parameter range	pL=3, pH=0 cn=49 fn=69 48 ÿ n ÿ 51
Default	n=48
Support Models	All Models Set
Precautions	QR Code Error Correction Level Error

n function	Reference: Approximate representation of recovery (%)
48 Error correction level error L	7
49 Error correction level error m 15 50	
Error correction level error q 51 Error	25
correction level error h	30

Example of use	none

Store **QR** code data to **QR** code buffer

Command name	to store QR code data into QR code buffer
instruction code	ASCII: GS (k pL pH cn fn m d1…dk Decimal: 29 40 107 pL pH cn fn m d1…dk Hexadecimal: 1D 28 6b pL pH cn fn m d1…dk
Function description	Store QR code data into QR code buffer 4
parameter range	ÿ (pL + pH×256) ÿ 7092 (0 ÿ pL ÿ 255, 0 ÿ pH ÿ 28) cn=49 fn=80 m=48 0 ÿ d ÿ 255 k = (pL + pH×256) - 3
Default	No Supported Models All Models
Precautions	Store the data (d1...dk) of the QR code in the QR code buffer. ((pL + pH×256)-3) bytes are processed as graphic data after m(d1...dk).
Example of use	none

print **QR** code

Command Name Print QR Code	
instruction code	ASCII: GS (Decimal: k pL pH cn fn m 29 40 107 pL pH cn fn m Hex: 1D 28 6b pL pH cn fn m
Function Description Print QR Code	
parameter range	pL=3, pH=0 cn=49 fn=81 m=48
Default None	
All models supported	
Precautions	Print a QR code. The user must consider the space of the QR code graphic (the spacing above and below the QR code graphic and the specified in the specification).
Example of use	1b 40 1d 28 6b 03 00 31 43 03 1d 28 6b 03 00 31 45 30 1d 28 6b 06 00 31 50 30 41 42 43 1b 61 01 1d 28 6b 03 00 31 52 30 1d 28 6b 03 00 31 51 30

Set the graphic information of the **QR** code

Command name Set the graphic information of the QR code	
instruction code	ASCII: GS (k pL pH cn fn m Decimal: 29 40 107 pL pH cn fn m Hex: 1D 28 6b pL pH cn fn m
Function description	Set the graphic information of the QR code. The following are the specific details of the graphic information:

send data	Hexadecimal data type		
Header	37H	55	1byte
Flag	36H	54	1byte
Width	30H-39H 48-57		1-5byte
Separator	1FH	31	1byte
Height	30H-39H 48-57		1-5byte
Separator	1FH	31	1byte
Fixed Value	31H	49	1byte
Separator	1FH	31	1byte
Other Information	30H or 31H	48 or 49	1byte
NUL	00H	0	1byte

width Spend and high Spend of number according to send deliver: picture

	The height and width values for shape data are in points. Other information data sending: "Hexadecimal=30H/ Decimal=48" means that the data will not be printed. "Hexadecimal=31H/ Decimal=49" means that the data is not printed.
parameter range	pL=3, pH=0 cn=49 fn=82 m=48
Default	without
Support Models All Models	
Precautions	This command does not print QR code graphics. The user must consider the space of the QR code graphic (the top and bottom spacing and the left and right spacing of the QR code graphic are specified in the specification).
Example of use none	

print QR code

Command name print QR code	
instruction code	ASCII: GS kmvr nL nH d1…dk Decimal: 29 107 97 vr nL nH d1…dk Hexadecimal: 1D 6B 61 vr nl nH d1…dk Print QR code v means the specification of the QR code, v=0 means Automatically select the
Function description	specification of the QR code r indicates the error correction level nL nH indicates the data length d1…dk indicates the QR code data to be printed
parameter range	0 ÿ v ÿ 17 1 ÿ r ÿ 4 k = nL + 256 * nH
Default	without
Support Model Portable Printer Notes	
Print QR Code.	
Example of use	1b 40 1D 6B 61 08 02 08 00 30 31 32 33 34 35 36 37

ÿStatus command

delivery status

Command name transfer status	
instruction code	ASCII: GS rn Decimal: 29 114 n Hexadecimal: 1D 72 n
The function description conveys the state specified by n as follows:	

	n: 1.49 — condition: Transport paper sensor status
Parameter range	n = 1, 49
Default	None
All models supported	
Precautions	When using the serial interface: If DTR/DSR control is set, the printer will confirm that the host is ready to receive data (DSR number is SPACE), only one byte is transmitted. If the host computer is not ready to receive and send data (DSR signal is MARK), the printer waits until the host is ready. If XON/XOFF control is set, the printer only transmits one byte and does not acknowledge the DSR signal condition. This command is executed when data is generated in the print buffer. So after receiving the command and sending There may be a time interval between states, depending on the state of the receive buffer. Status and ASB status transmitted with GS r when automatic status reply ASB is activated with GS a states must be distinguished. The status types delivered are as follows: Paper sensor status (n = 1, 49):

Bit off/on	hex	decimal	ASB status	
0,1	-	-	-	meaningless.
2,3 off	00		0	Paper End Sensor: The paper is full.
on		(0C)	(12)	The paper end sensor is out of paper.
4 off	00		0	Not used, fixed as off.
5,6 - 7		-	-	undefined.
off	00		0	Not used, fixed as off.

Bits 2 and 3: When the paper end sensor detects paper end, the printer goes offline, and The command does not execute. Therefore bits 2 and 3 do not transmit the out-of-paper status.

Example of use	none

Real-time delivery status

command name	real-time transmission status
instruction code	ASCII: DLE EOT n Decimal: 16 4 n Hex: 10 04 n
Function description	According to the following parameters, the printer status is transmitted in real time, and the parameter n is used to specify the printer to be transmitted condition: n = 1: transmit printer status n = 2: transmit offline status n = 3: transmit error status n = 4: Transport paper sensor status
Parameter range	1 ÿ n ÿ 4
Defaults	without

All models supported

Precautions

• The printer returns to the relevant status immediately after receiving the command

• Try not to insert this command in a command sequence of 2 or more bytes.

• Even if the printer is disabled by the ESC = (Select Peripheral) command, this command is still valid.

• The printer transmits the current status, and each status is represented by 1 byte of data.

• The printer transmits the status without confirming that the host has received it.

• The printer executes the command immediately.

• This command is only valid for serial printers. The printer immediately executes this command in any state.

Row.

n=1: Printer status

Bit 0/1	Hexadecimal	Code	Function
0 0		00	0	fixed at 0
1	1	02	2	fixed at 1
2	0	00	0	one or two cash drawers open (For machines without a cash drawer, this bit is fixed to zero)
	1	04	4	Both cash drawers are closed
3	0	00	0	online
	1	08	8	offline
4 1		10	16	fixed at 1
5, 6		--	--	undefined
7	0	00	00	paper torn
	1	80	96	paper not torn

n=2: Transmit offline status

Bit 0/1	Hexadecimal	Code	Function
0 0		00	0	fixed at 0
1	1	02	2	fixed at 1
2	0	00	0	cover off
	1	04	4	cover open
3	0	00	0	Paper feed key not pressed
	1	08	8	Press the paper feed key
4 1		10	16	fixed at 1
5	0	00	0	The printer is not out of paper
	1	20	32	The printer is out of paper
6 0		00	00	no errors
	1	40	64	error condition
7	0	00	0	fixed at 0

n=3: Transmission error status

Bit 0/1	Hexadecimal	Code	Function
0 0		00	0	fixed at 0

1	1	02	2	fixed at 1
2		--	--	undefined
3	0	00	0	Cutter without error
	1	08	8	The cutter is wrong
4 1		10	16	fixed at 1
5	0	00	0	No unrecoverable errors
	1	20	32	There are unrecoverable errors
6 0		00	00	The print head temperature and voltage are normal
	1	40	64	Printhead temperature or voltage out of range
7	0	00	0	fixed at 0

n=4: Transport paper sensor status

Bit 0/1 Hexadecimal Code Function				
0 0		00	0	fixed at 0
1	1	02	2	fixed at 1
2,	0	00	0	have paper
3	1 0C		12	paper near
4 1		10	16	fixed at 1
5,	0	00	0	have paper
6	1	60	96	run out of paper
7	0	00	0	fixed at 0

Example of use	10 04 01 10 04 02 10 04 03 10 04 04

real-time printer request

command name	real-time printer request
instruction code	ASCII: DLE ENQ n Decimal: 16 5 n Hex: 10 05 n
Function description	The printer responds to the host's request. n Specify the following requests:

n	ask
1	Recover from the error and restart printing from the line where the error occurred.
2	Recover from errors after clearing receive and print buffers.

Parameter range	n = 1, 2
Default	None

All models supported	
Precautions	This command is valid only when auto cutter error, cover open error occurs. The printer starts processing data as soon as it receives this command. Even if the printer is offline, when the print buffer is full or a serial interface mode error occurs, Still execute the command. In parallel interface mode, this command cannot be executed when the printer is busy. Status will be sent whenever a <10>H<05>H<n> (1ÿnÿ2) data sequence is received. E.g: ESC * m nL nH dk , d1 = <10>H, d2 = <05>H, d3 = <01>H This command cannot be used in a command data containing 2 or more bytes. E.g: If you want to send ESC 3n to the printer, but before n is sent, the DTR (for The host is DSR) will become MARK, so before n is received, DLE ENQ occurs 2 Interrupt. DLE ENQ 2 code <10>H will be treated as ESC 3 code <10>H processing. DLE ENQ 2 allows the printer to clear the receive buffer and print buffer Recover from an error state. The printer retains the settings that were in effect when the error occurred (such as ESC !, ESC3 et al.) can be used with this command and ESC @ to fully initialize the printer, this command is only possible Recovered errors are valid, except for head temperature errors.
Use example 10 05 01	

Enable, disable automatic status reply (ASB)

Command Name Enable, Disable Automatic Status Reply (ASB)	
instruction code	ASCII: GS an Decimal: 29 97 n Hex: 1d 61 n
Function description	ASB is enabled or disabled and the included status items are specified with n as follows:

Bit Off/On Hexadecimal ASB Status				
0	-	-	-	undefined
1	-	-	-	undefined
2 Off 00	On 04 3 Off 00		0	Error Status Disabled
	On 08		4	Error status allowed
			0	Paper Roll Sensor Status Disabled
			8	Paper Roll Sensor Status Allowed
4-7	-	-	-	undefined

Parameter range 0ÿnÿ255	
Default	without
Support Models All Models	
Precautions	If any of the status items in the above table are allowed, then print when the command is executed Machine transmission status. Once the "Allow" status item is changed, the printer automatically transmits the status. because Each state transfer represents the current state, so prohibited state items can be changed. If all status items are disabled, then the ASB function is also disabled. If ASB is enabled as the default setting, the first time the printer is turned on can receive and

	When transferring printer data, the printer transmits the status. The following four status bytes are transmitted without determining whether the host is ready to receive data. The four status bytes must be consecutive, except for the XOFF code. Because command data is processed in the receive buffer and executed, there may be a lag time between data reception and status transfer. When using DLE EOT, a distinction must be made between the status transmitted by these commands and the ASB status.
Use Example 1D 61 08	

ÿOther instructions

Initialize the printer

command name initialize printer	
instruction code	ASCII: ESC @ Decimal: 27 64 Hexadecimal: 1B 40 Initialize the printer as follows: Clear the
Function description	print cache and restore the default values of each parameter
Parameter Range No Default	
Value No Supported Models	All
Model Notes No Usage Examples No	

Print a self-test page

Instruction Name Print Self-Test Page	
instruction code	ASCII: DC2 T Decimal: 18 94 Hexadecimal: 12 54 The printer prints a self-test page, which
Function description	contains the printer's program version, communication interface type, code page and some other data
Parameter range No default	
value No supported models	All
model notes No usage example 1B 40	
12 54	

Set the print density

Command Name Set Print Density	
instruction code	ASCII: ESC 7 n1 n2 n3 Decimal: 27 55 n1 n2 n3

	Hexadecimal: 1B 37 n1 n2 n3 Set the
Function description	maximum heating point for printing, heating time, interval time: n1 = 0-255 maximum heating points, unit (8dots), default value 9 (80 points); n2 = 0-255 heating time, unit (10us), default value 80; n3 = 0-255 heating interval time, unit (10us), the default value is 2; if the number of heating points is large, the maximum power consumption current of the control board will be large, and the printing speed will be fast. The maximum number of heating points is 8×(n1+1); the longer the heating time, the higher the printing blackness and the slower the printing speed. If the heating time is too short, there may be blank printing; The longer the interval is, the clearer the printing and the slower the printing speed;
Parameter	
range Default value No	
supported models All models Notes	
"heating time", "heating interval time"	1. The panel will automatically adjust according to the input voltage.
Example of use	Number of heating points: 80 points, heating time: 800us, interval time 200us. 1B 40 1B 37 09 50 02 12 54 Number of heating points: 80 points, heating time: 1600us, interval time 200us. 1B 40 1B 37 09 A0 02 12 54 It can be seen that after the heating time is prolonged, the printing density is obviously blackened.

Appendix **A 128** yards

A.1 128 yards overview

Code 128 can use character set A, character set B and character set C alternately to 100 numbers from 00 to 99 and some special characters are encoded. The characters encoded in each character set are as follows: ÿ Character set A: ASCII characters 00H to 5FH ÿ Character set B: ASCII characters 20H to 7FH ÿ Character set C: 100 digits 128 codes from 00 to 99 The following special characters can also be processed Encoding: ÿ SHIFT character

"SHIFT" can make the first character after the SHIFT character in the barcode symbol change from character set A to character set B, or from character set B to character set A, and restore from the second character to the character set used before SHIFT. The "SHIFT" character can only be used to convert between character set A and character set B, it cannot make the current encoded characters into the Or exit the charset C state. ÿ Character set selection characters (CODE A, CODE B, CODE C)

These characters convert the coded characters that follow them to character set A, B, or C. ÿ Function characters (FNC1, FNC2, FNC3, FNC4) The use of these function characters depends on the application software. In character set C, only FNC1 is available.

A.2 Character set

characters in character set A

字符	发送数据		字符	发送数据		字符	发送数据	
	Hex	Decimal		Hex	Decimal		Hex	Decimal
NULL	00	0	(	28	40	P	50	80
SOH	01	1	)	29	41	Q	51	81
STX	02	2	*	2A	42	R	52	82
ETX	03	3	+	2B	43	S	53	83
EOT	04	4	,	2C	44	T	54	84
ENQ	05	5	-	2D	45	U	55	85
ACK	06	6	.	2E	46	V	56	86
BEL	07	7	/	2F	47	W	57	87
BS	08	8	0	30	48	X	58	88
HT	09	9	1	31	49	Y	59	89
LF	0A	10	2	32	50	Z	5A	90
VT	0B	11	3	33	51	[	5B	91
FF	0C	12	4	34	52	\	5C	92
CR	0D	13	5	35	53	]	5D	93
SO	0E	14	6	36	54	^	5E	94
SI	0F	15	7	37	55	_	5F	95
DLE	10	16	8	38	56	FNC1	7B,31	123,49
DC1	11	17	9	39	57	FNC2	7B,32	123,50
DC2	12	18	:	3A	58	FNC3	7B,33	123,51
DC3	13	19	;	3B	59	FNC4	7B,34	123,52
DC4	14	20	<	3C	60	SHIFT	7B,53	123,83
NAK	15	21	=	3D	61	CODEB	7B,42	123,66
SYN	16	22	>	3E	62	CODEC	7B,43	123,67
ETB	17	23	?	3F	63			
CAN	18	24	@	40	64			
EM	19	25	A	41	65			
SUB	1A	26	B	42	66			
ESC	1B	27	C	43	67			
FS	1C	28	D	44	68			
GS	1D	29	E	45	69			
RS	1E	30	F	46	70			
US	1F	31	G	47	71			
SP	20	32	H	48	72			
!	21	33	I	49	73			
"	22	34	J	4A	74			
#	23	35	K	4B	75			
$	24	36	L	4C	76			
%	25	37	M	4D	77			
&	26	38	N	4E	78			
'	27	39	O	4F	79			

characters in character set B

字符	发送数据		字符	发送数据		字符	发送数据	
	Hex	Decimal		Hex	Decimal		Hex	Decimal
SP	20	32	H	48	72	p	70	112
!	21	33	I	49	73	q	71	113
"	22	34	J	4A	74	r	72	114
#	23	35	K	4B	75	s	73	115
$	24	36	L	4C	76	t	74	116
%	25	37	M	4D	77	u	75	117
&	26	38	N	4E	78	v	76	118
'	27	39	O	4F	79	w	77	119
(	28	40	P	50	80	x	78	120
)	29	41	Q	51	81	y	79	121
*	2A	42	R	52	82	z	7A	122
+	2B	43	S	53	83	{	7B,7B	123,123
,	2C	44	T	54	84	|	7C	124
-	2D	45	U	55	85	}	7D	125
.	2E	46	V	56	86	—	7E	126
/	2F	47	W	57	87	DEL	7F	127
0	30	48	X	58	88	FNC1	7B,31	123,49
1	31	49	Y	59	89	FNC2	7B,32	123,50
2	32	50	Z	5A	90	FNC3	7B,33	123,51
3	33	51	[	5B	91	FNC4	7B,34	123,52
4	34	52	\	5C	92	SHIFT	7B,53	123,83
5	35	53	]	5D	93	CODEA	7B,41	123,65
6	36	54	^	5E	94	CODEC	7B,43	123,67
7	37	55	_	5F	95			
8	38	56	`	60	96			
9	39	57	a	61	97			
:	3A	58	b	62	98			
;	3B	59	c	63	99			
<	3C	60	d	64	100			
=	3D	61	e	65	101			
>	3E	62	f	66	102			
?	3F	63	g	67	103			
@	40	64	h	68	104			
A	41	65	i	69	105			
B	42	66	j	6A	106			
C	43	67	k	6B	107			
D	44	68	l	6C	108			
E	45	69	m	6D	109			
F	46	70	n	6E	110			
G	47	71	o	6F	111			

Characters in character set C

字符	发送数据		字符	发送数据		字符	发送数据	
	Hex	Decimal		Hex	Decimal		Hex	Decimal
0	00	0	40	28	40	80	50	80
1	01	1	41	29	41	81	51	81
2	02	2	42	2A	42	82	52	82
3	03	3	43	2B	43	83	53	83
4	04	4	44	2C	44	84	54	84
5	05	5	45	2D	45	85	55	85
6	06	6	46	2E	46	86	56	86
7	07	7	47	2F	47	87	57	87
8	08	8	48	30	48	88	58	88
9	09	9	49	31	49	89	59	89
10	0A	10	50	32	50	90	5A	90
11	0B	11	51	33	51	91	5B	91
12	0C	12	52	34	52	92	5C	92
13	0D	13	53	35	53	93	5D	93
14	0E	14	54	36	54	94	5E	94
15	0F	15	55	37	55	95	5F	95
16	10	16	56	38	56	96	60	96
17	11	17	57	39	57	97	61	97
18	12	18	58	3A	58	98	62	98
19	13	19	59	3B	59	99	63	99
20	14	20	60	3C	60	FNC1	7B,31	123,49
21	15	21	61	3D	61	CODEA	7B,41	123,65
22	16	22	62	3E	62	CODEB	7B,42	123,66
23	17	23	63	3F	63			
24	18	24	64	40	64			
25	19	25	65	41	65			
26	1A	26	66	42	66			
27	1B	27	67	43	67			
28	1C	28	68	44	68			
29	1D	29	69	45	69			
30	1E	30	70	46	70			
31	1F	31	71	47	71			
32	20	32	72	48	72			
33	21	33	73	49	73			
34	22	34	74	4A	74			
35	23	35	75	4B	75			
36	24	36	76	4C	76			
37	25	37	77	4D	77			
38	26	38	78	4E	78			
39	27	39	79	4F	79			

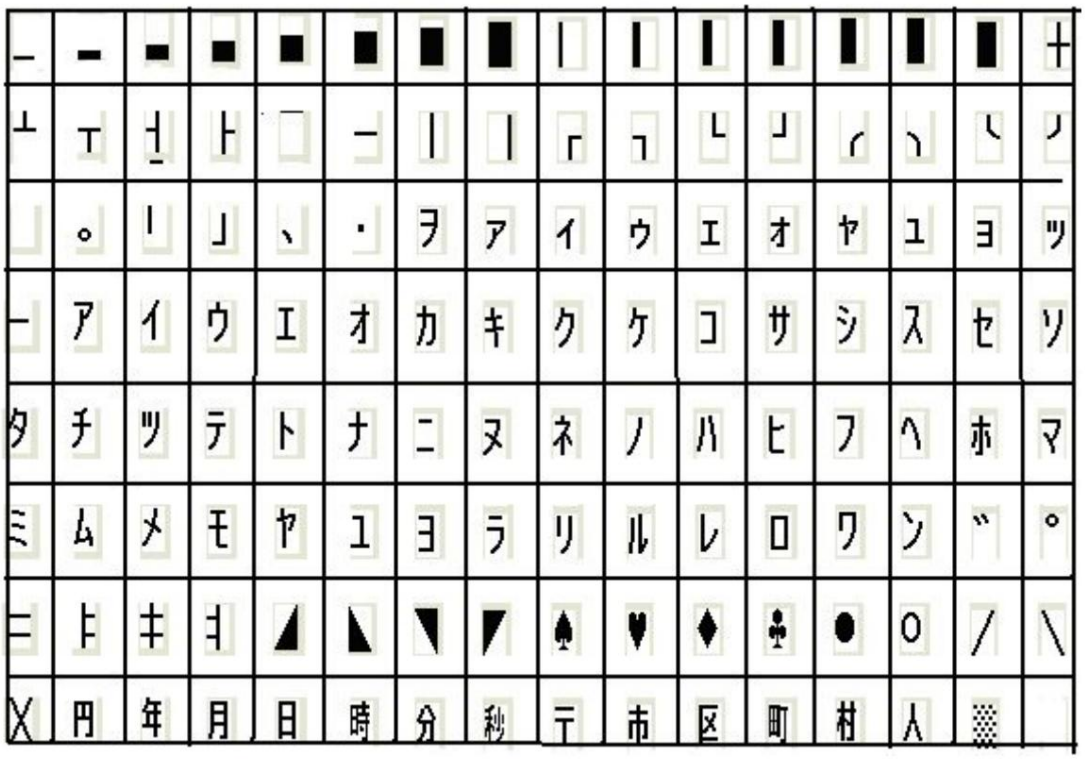
Appendix B. Code Page Schedule

1. Character code table

Page0 PC437

Code page 437																	
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F	
8_	Ç	ü	é	â	ä	à	å	ç	ê	ë	è	ï	î	ì	Ä	Å	
9_	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	¢	£	¥	ÿ	ƒ	
A_	á	í	ó	ú	ñ	Ñ	ª					º	¿	ÿ	¬	½	¼	¡	«	»					
B_	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ									ÿ	ÿ	ÿ		ÿ
C_	ÿ	ÿ		ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ						ÿ	ÿ		ÿ	ÿ	ÿ	ÿ	ÿ		
D_	ÿ		ÿ	ÿ		ÿ	ÿ		ÿ	ÿ	ÿ	ÿ	ÿ				ÿ	ÿ	ÿ	ÿ	ÿ	ÿ			
E_	ÿ	ß	ÿ	ÿ	ÿ	ÿ	µ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ									
F_	ÿ	±	ÿ	ÿ	ÿ				ÿ	÷	ÿ		°		'		·	ÿ	ÿ	²			ÿ		

Page1 Katakana



	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F				
8	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ						ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ				
9_	ÿ		ÿ	ÿ	ÿ	?	ÿ	ÿ	?	ÿ	ÿ				ÿ	ÿ		ÿ	ÿ		ÿ	ÿ		
A_			.		"		'		ÿ		ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ				
B_	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ								
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E =	ÿ					ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ											

F	×	Yen, month, day, hour, minute, second, local peopleÿ														

Page2 PC850[Multilingual]

Code page 850																		
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F		
8_	Ç	ü	é	â	ä	à	å	ç	ê	ë	è	ï	î	ì	Ä	Å		
9_	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	ø	£	Ø	×	ƒ		
A_	á	í	ó	ú	ñ	Ñ	ª					º	¿	®	¬	½	¼	¡	«	»				
B_	ÿ	ÿ	ÿ	ÿ	ÿ	Á	Â	À	©	ÿ	ÿ	ÿ								ÿ	¢	¥	ÿ	
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Page3 PC860[Portuguese]

Code page 860																		
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F		
8_	Ç	ü	é	â	ã	à	Á	ç	ê	Ê	è	Í	Ô	ì	Ã	Â		
9_	É	À	È	ô	õ	ò	Ú	ù	Ì	Õ	Ü	¢	£	Ù	ÿ	Ó		
A_	á	í	ó	ú	ñ	Ñ	ª				º	¿	Ò	¬	½	¼	¡	«	»				
B_	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ								ÿ	ÿ	ÿ			ÿ
C_	ÿ	ÿ		ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ							ÿ	ÿ		ÿ	ÿ	ÿ	ÿ	ÿ			
D_	ÿ		ÿ	ÿ		ÿ	ÿ		ÿ	ÿ	ÿ	ÿ	ÿ				ÿ	ÿ	ÿ	ÿ	ÿ	ÿ			
E_	ÿ	ß	ÿ	ÿ	ÿ	ÿ	µ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ									
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Page4 PC863[Canadian-French]

Code page 863																	
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8_	Ç	ü	é	â	Â	à	¶	ç	ê	ë	è	ï					
9_	É	È	Ê	ô	Ë	Ï	û	ù	¤	Ô	Ü	¢	£	Ù	Û	ƒ	
A_	¦			ó	ú	¨			¸	³	¯	Î	ÿ	¬	½	¼	¾	«	»
B_	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ								
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Page5 pc865[Nordic]

Code page 865																		
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F		
8_	Ç	ü	é	â	ä	à	å	ç	ê	ë	è	ï	î	ì	Ä	Å		
9_	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	ø	£	Ø	ÿ	ƒ		
A_	á	í	ó	ú	ñ	Ñ	ª	º					¿	ÿ	¬	½	¼	¡	«	¤				
B_	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ
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Page6 pc1251 [Cyrillic]

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9_	ÿ				" "		•	--					TM		ÿ	›	ÿ ÿ ÿ ÿ
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D_	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ		
E_	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ		
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Page7 pc866 Cyrilliec #2

Code page 866																		
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B_	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ
C_	ÿ	ÿ												ÿ	ÿ		ÿ	ÿ	ÿ	ÿ	ÿ			
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E_	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ										
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Page8 MIK [Cyrillic /Bulgarian]

Code page MIK																			
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Page9 CP755

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	_0	**_1**	**_2**	**_3**	**_4**	**_5**	**_6**	**_7**	**_8**	**_9**	**_A**	**_B**	**_C**	**_D**	**_E**	**_F**		
8_	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ		
9_	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ		
A_	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ		
B_	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ
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F_	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	Ž	Ž	ÿ						·	ÿ	ÿ	Š

Page10 Iran

Code page Iran																			
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8_	.	٫		ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ						ÿ	ÿ	ÿ	F	ÿ	ÿ	ÿ			
_9	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ							ÿ	ÿ	*Cÿ	*ÿ	ÿ				ÿ
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C_	ÿ	ÿ													ÿ	ÿ		ÿ	ÿ	ÿ	ÿ	ÿ			
D_	ÿ	ÿ	ÿ			ÿ	ÿ		ÿ	ÿ	ÿ	ÿ	ÿ			ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ			
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Page15 CP862 [Hebrew]

Code page 862																			
	_0	**_1**	**_2**	**_3**	**_4**	**_5**	**_6**	**_7**	**_8**	**_9**	**_A**	**_B**	**_C**	**_D**	**_E**	**_F**			
ÿ ÿ ÿ ÿ ÿ ÿ ÿ ÿ ÿ ÿ ÿ ÿ ÿ ÿ ÿ ÿ	**_8**																		
ÿ ÿ ÿ ÿ ÿ ÿ ÿ ÿ ÿ ÿ	**_9**														¢ £ ¥ ÿ				*ƒ*
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C_	ÿ	ÿ											ÿ		ÿ				
D_	ÿ		ÿ	ÿ		ÿ	ÿ		ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ			
E_	ÿ	ß	ÿ	ÿ	ÿ	ÿ	µ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ			
F_	ÿ	±	ÿ	ÿ	ÿ			ÿ	÷	ÿ	°	'	·	ÿ	ÿ		²	ÿ	

Page16 PC1252 Latin 1

Code page 1252																	
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F	
8_	€		‚	ƒ	„		…	†	‡		ˆ	‰	Š	‹	Œ	Ž	
9_		‘	’	“	”		•	–	—		˜	™		š	›	œ	ž	Ÿ	
A_		¡	¢	£	¤	¥	¦	§	¨	©	ª	«	¬		®				¯
B_	°	±	²	³			µ	¶	·		¸	¹	º		»	¼	½	¾	¿	
C_	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï				
D_	Ð	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß				
E_	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï				
F_	ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	ÿ				

Page17 WCP1253 [Greek]

Code page 1253																	
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F	
8_	€			‚	ƒ	„		…	†	‡	‰		‹				
9_		'	'			¨ ¨		•	–	—	™		›				
A_		ÿ	ÿ	£	¤	¥	¦	§	¨	©					«	¬	–	®	ÿ
B_	°	±	2		3		¸	µ	¶	·	ÿ	ÿ	ÿ	»	ÿ	½	ÿ	ÿ	
C_	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	Zn	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ				
D_	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	í				
E_	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ				
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Page18 PC852

Code page 852																			
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Page19 PC858 (Multilingual Latin ÿ+Euro)

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A_	á	í	ó	ú	ñ	Ñ	ª	º					¿	®	¬	½	¼	¡	«	»
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Page20 Iran II

Code page Iran II																		
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Page21 Latvian

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Page22 CP864 [Arabic]

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Page23 ISO-8859-1 [West Europe]

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E_	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
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Page24 CP737 [Greek]

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Page25 WCP1257 [Baltic]

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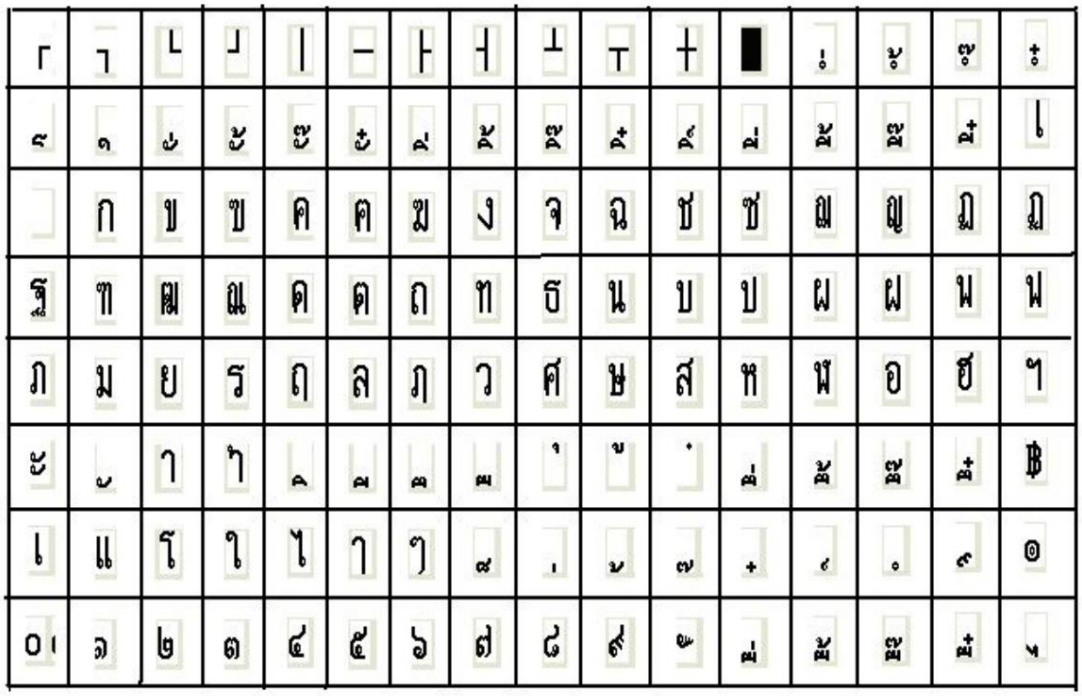
Page26 Thai



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Page27 CP720[Arabic]

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Page28 CP855

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Page29 PC857[Turkish]

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Page30 WCP1250[Central Eurpoe]

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Page31 CP775

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Page32 WCP1254[Turkish]

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Page33 WCP1255[Hebrew]

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Page34 WCP1256[Arabic]

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Page35 WCP1258[Vietnam]

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9_		'	'	"	"			•	–	—		˜	™			›	œ			Ÿ
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Page36 ISO-8859-2[Latin 2]

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Page37 ISO-8859-3[Latin 3]

Code page-8859-3																
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
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Page38 ISO-8859-4[Baltic]

Code page-8859-4																
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
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D_	ÿ	ÿ	ÿ	ÿ	Ô	Õ	Ö	×	Ø	ÿ	Ú	Û	Ü	ÿ	ÿ	ß
E_	ÿ	á	â	ã	ä	å	æ	ÿ	ÿ	é	ÿ	ë	ÿ	í	î	ÿ
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Page39 ISO-8859-5[Cyrillic]

Code page-8859-5																	
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F_	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	§	ÿ	ÿ			

Page40 ISO-8859-6[Arabic]

Code page-8859-6																	
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F	
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Page41 ISO-8859-7[Greek]

Code page-8859-7																	
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Page42 ISO-8859-8 [Hebrew]

Code page-8859-8																	
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F	
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Page43 ISO-8859-9[Turkish]

Code page-8859-9																	
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B_	º	±	²		³		´	µ	¶	·			¸	¹	º	»	¼	½	¾	¿	
C_	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï					
D_	ÿ	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	ÿ	ÿ	ß					
E_	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï					
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Page44 ISO-8859-15 [Latin 3]

Code page-8859-15																	
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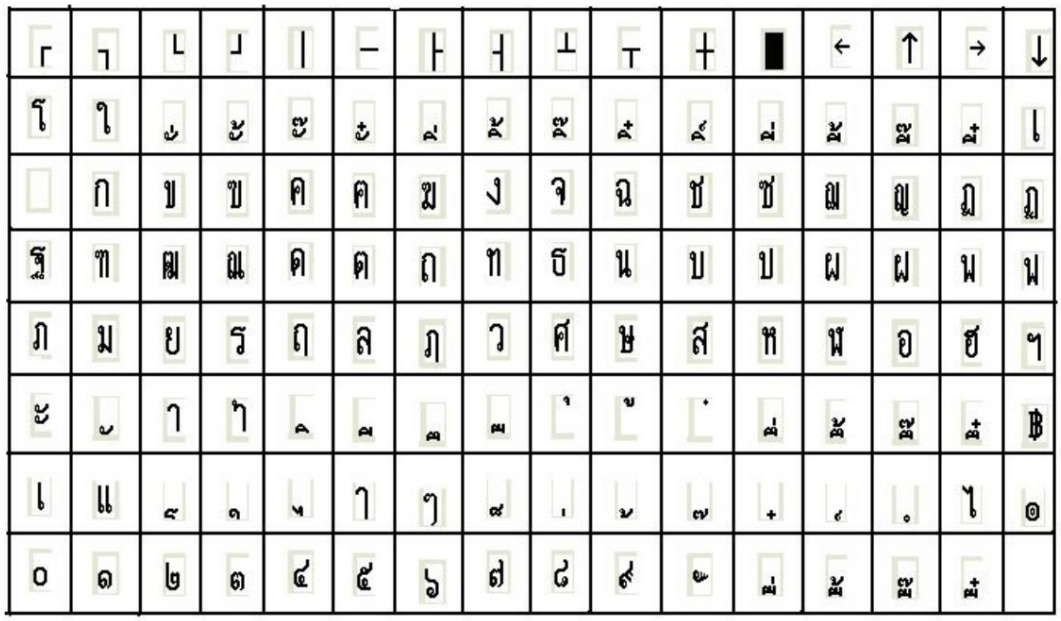
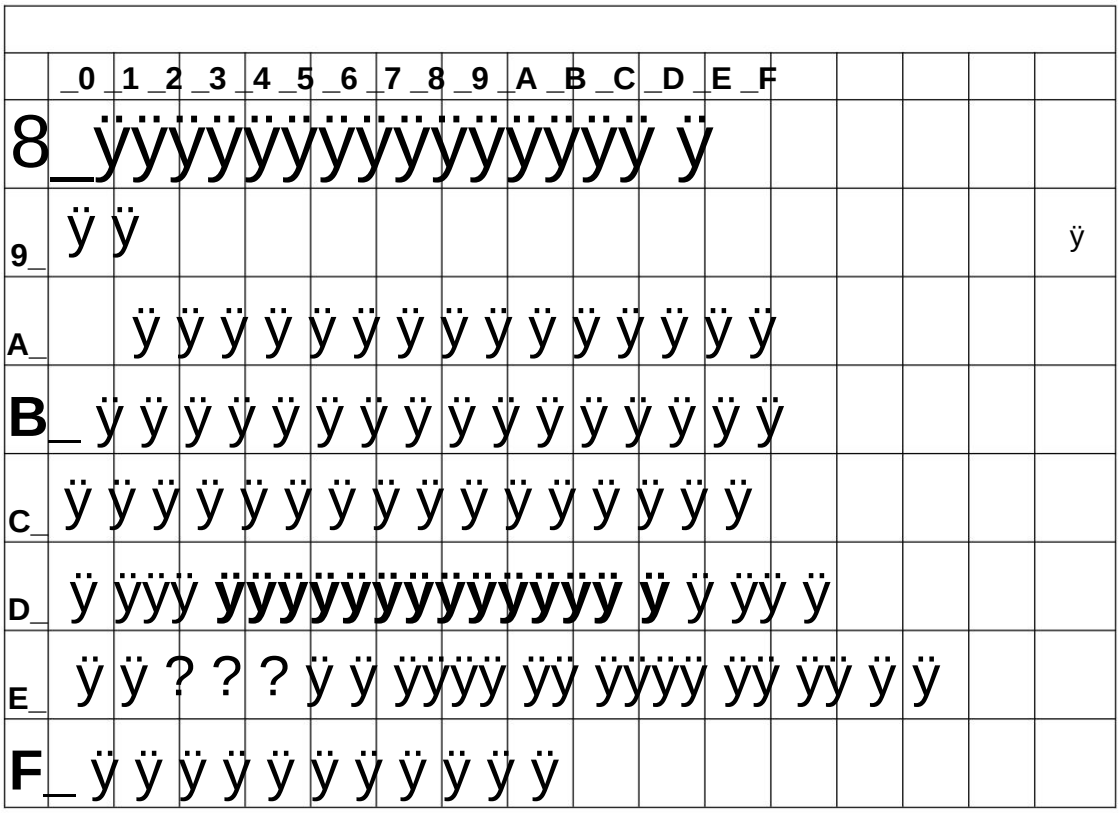
Page45 Thai2





Page46 CP856()

Code page 856																		
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Page47 Cp874

Code page 874																	
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Page48 TCVN3

TCVN3																	
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Page49 VISCII

VISCII																			
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2 International character sets

County	ASCII Code(Hex)											
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Denmark I	#	$	@	Æ	Ø	Å	^	æ	ø	å	~	
Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
Italy	#	$	@	°	\	é	^	ù	à	ò	è	ì
Spain I	Pt	$	@	¡	Ñ	¿	#	$	@	[	¥	]
Japan	Æ	Ø	Å	Ü	é	æ	ø	å	ü			
Norway	#	$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
Denmark II	#	$	á	¡	Ñ	¿	é	`	í	ñ	ó	ú
Spain II	#	$	á	¡	Ñ	¿	é	ü	í	ñ	ó	ú
Latin	#	$	@	[	ÿ	]	{	|	}	š	ÿ	ÿ
Korea	#	$	Ž	Š	ÿ	ÿ	ÿ	ž				
Slovenia/Croatia	#	¥	@	[	\	]	^					
China												