POS80V Technical manual

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1. Command Introduction

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1.2 Commands details

①Printing and paper feed commands

Printing and paper feed

Name	Print and paper feed
Code	ASCII ： LF DEC ： 10 HEX ： 0A
Function	Print the buffer contest,and set the paper feed as per line space,then adjust print position to initial position at the next line

Parameter range	No
Default	No
Notes	No
Example	No

CR

Name	carriage return
Code	ASCII ： CR DEC ： 13 HEX ： 0D
Function	Adjust print position to initial position of the same line.
Parameter range	No
Default	No
Notes	After executing, R command, the new printing data will cover old data in the printing buffer
Example	No

Print and paper feed dots

Name	Print and paper feed dots
Code	ASCII ： ESC J n DEC ： 27 74 n HEX ： 1B 4A n
Function	Print the buffer content and paper feed
Parameter range	0 ⩽ n ⩽ 255
Default	No
Notes	Paper feed n dots when printing buffer is empty. After executing this command,printing position is moved to initial position in next line.
Example	1b 40 30 31 32 1b 4a 10

Print and paper feed n line

Name	Print and paper feed n line
Code	ASCII ： ESC d n DEC ： 27 100 n HEX ： 1B 64 n
Function	Print the contents in printing buffer and paper feed n lines
Parameter range	0 ⩽ n ⩽ 255
Default	No
Notes	Print this command set as initial position of the same line
Example	1b 40 30 31 32 1b 64 01

②Printing set commands

Set absolute line position

Name	Set absolute line position
Code	ASCII ： ESC $ nL nH DEC ： 27 36 nL nH HEX ： 1B 24 nL nH
Function	set the distance from beginning of a line to will print character
Parameter range	0 ⩽ nL ⩽ 255 0 ⩽ nH ⩽ 255
Default	No
Notes	From the beginning of a line to the distance from the center of the print is[(nL+nH*256)]*0.125 mm] Designated areas outside print Settings are ignored
Example	No

Set the right character spacing

Name	Set the right character spacing
Code	ASCII ： ESC SP n DEC ： 27 32 n HEX ： 1B 20 n
Function	Set the characters on the right side of the gap is[n*0.125 mm]
Parameter range	0 ⩽ n ⩽ 255
Default	n = 0
Notes	For times wider pattern, character spacing on the right side is twice the general mode.When the character be amplified, character spacing on the right side is the general mode of n times. This command does not affect the setting of Chinese characters This command independent value standard patterns in each mode
Example	No

Set the line spacing for n points

Name	Set the line spacing for n points
Code	ASCII ： ESC 3 n DEC ： 27 51 n HEX ： 1B 33 n
Function	Set line space as n dots
Parameter range	0 ⩽ n ⩽ 255
Default	n = 33
Notes	Line space as below:  If the setted line space is less than the highest character in that line,then

	this line space is equal to the height of the highest character. If ESC2,ESC@,reset the printer, the printer blankout,and the line space turns to default.
Example	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 default line space

Name	Set default line space
Code	ASCII ： ESC 2 DEC ： 27 50 HEX ： 1B 32
Function	Set line space to default 30 dots
Parameter range	No
Default	No
Notes	Line space in details pls check ESC 3 command. If the setted line space is less than the height character in the line,the line space of this line is equal to the height of the highest character. It can use ESC 3 to define line space.
Example	No

Set the character print mode

Name	Set the character print mode
Code	ASCII ： ESC ! n DEC ： 27 33 n HEX ： 1B 21 n
Function	Set character printing methods(font,highlight,inversion,bold,double hight,double width and underline),parameter n bit definition as below: Bit Function Value 0 1 0 Font Normal Small character 1 Undefined 2 Undefined 3 BoldCancel Setting 4 Double hight Cancel Setting 5 Double width Cancel Setting 6 Undefined 7 UnderlineCancel Setting
Parameter range	No

Default	n = 0
Notes	The command is effective with Chinese and foreign languages. The command is disabled when ESC@, printer reset or blank out.
Example	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

Name	Set character size
Code	ASCII ： GS ! n DEC ： 29 33 n HEX ： 1d 21 n
Function	Set character size as 1-8 times width,1-8 times height. Definition is as below: Use 0-3 set character height 4 - 7 bits set character width show as below:

Chart 1
Character width setting

HEX	DEC	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

Chart 2
Character height setting

HEX	DEC	width
00	0	1(Normal)
01	1	2(Double width)
02	2	3
03	3	4
04	4	5
05	5	6
06	6	7
07	7	8

Parameter range	No
Default	n = 0
Notes	This command is effective with Chinese and other foreign languages, except for HRI character. The command setting is disable when ESC@, printer reset or blankout.
Example	1b 40 1d 21 11 30 31 32 0d 0a 30 31 32 0d 0a

Set and cancel white printing

Name	Set and cancel white printing
Code	ASCII ： GS B n DEC ： 29 66 n HEX ： 1d 42 n
Function	Set or cancel white printing mode When the LSB is 0,white printing mode is off. When the LSB is 1,white printing mode is on.
Parameter range	No
Default	n = 0
Notes	It is only effective for LSB of n. This command is all effective with built-in characters and user-defined characters. It is effective with blank,which is setted by ESC CP,when white printing mode is on. This command is not effective with bitmap, user-defined bitmap, barcode, HRI character and vaulting space of HT,ESC $. This command is not effective with line space. The white printing mode is prior to underline mode. When it is white printing mode, even underline mode is open, which can also be forbidden.(But it not be canceled). This command is disabled when ESC@, printer reset or blankout.
Example	1b 40 1d 42 01 30 31 32 0d 0a 30 31 32 0d 0a

Set and delete underline

Name	Set and delete underline
Code	ASCII ： ESC - n DEC ： 27 45 n HEX ： 1B 2D n
Function	Set/delete underline mode,based on n value as below: n: 0, 48 — Delete underline mode n: 1, 49 — Set underline mode(1 dot coarse) n: 2, 50 — Set underline mode(2 dot coarse)
Parameter range	0 ≤ n ≤ 2, 48 ≤ n ≤ 50
Default	n = 0
Notes	Printer can print underline for all characters(including spacing in characters left side),but expect for setted blank by HT. Printer can not print underline for clockwise rotated 90 ° characters and white printing characters.

	When n is setted as 0 or 48,delete underline mode.Other data is not printed as underline,and the setted underline coarseness does not change before deleting underline mode.The default underline coarseness is 1 dot. It is not effective with underline coarseness to chang character size. Using ESC! can also set and delete underline mode.But pls note the last received command must be effective.
Example	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 delete bold print

Name	Set and delete bold print
Code	ASCII ： ESC E n DEC ： 27 69 n HEX ： 1B 45 n
Function	set and remove bold print When n the least significant bit is 0, delete bold print mode When n the most significant bit is 1, set in bold print mode
Parameter range	0 ≤ n ≤ 255
Default	n = 0
Notes	N only the least significant bit allows you to use
Example	No

Set and delete overstriking

Name	Set and delete overstriking
Code	ASCII ： ESC G n DEC ： 27 71n HEX ： 1B 47 n
Function	set and delete overstriking When n the least significant bit is 0， delete overstriking When n the most significant bit is 1， set overstriking
Parameter range	0 ≤ n ≤ 255
Default	n = 0
Notes	N only the least significant bit allows you to use In the overstriking pattern and bold pattern printer output is the same
Example	No

Set and cancel character upside down

Name	Set and cancel character upside down
Code	ASCII ： ESC { n DEC ： 27 123 n HEX ： 1B 7B n

Function	n=1: set character upside down n=0： cancel character upside down
Default	n=0
Notes	No
Example	No

Set and delete clockwise 90° revolving printing

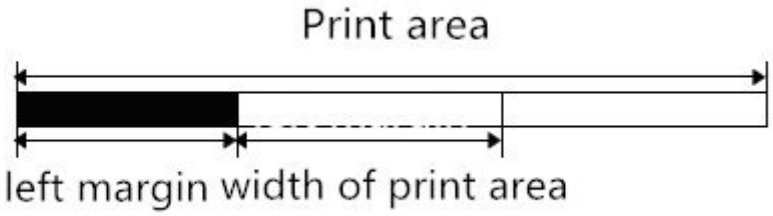
Name	Set and delete clockwise 90° revolving printing
Code	ASCII ： ESC V n DEC ： 27 86 n HEX ： 1B 56 n
Function	Set or delete 90° revolving printing. When n is equal to 0 or 48,delete 90° revolving printing. When n is equal to 1 or 49,set 90° revolving printing.
Parameter range	0 ≤ n ≤ 1， 48 ≤ n ≤ 49
Default	n = 0
Support	All
Notes	When it is setted to underline mode.Printer does not add underline for clockwise 90° revolved characters. Under clockwise 90 ° revolving mode,double height and double width commands zoomed characters direction is the opposite of double width and double height zoomed characters direction in normal mode. The command setting is disabled after ESC@,resetting the printer and power off.
Example	1b 40 1b 56 01 30 31 32 0d 0a 30 31 32 0d 0a

Allow and forbid key switch

Name	Allow and forbid key switch
Code	ASCII ： ESC c 5 n DEC ： 27 99 53 n HEX ： 1B 63 35 n
Function	n=1,forbid key switch n=0,allow key switch
Default	n = 0
Notes	No
Example	No

Set the left margin

Name	Set the left margin
Code	ASCII ： GS L nL nH DEC ： 29 76 nL nH HEX ： 1D 4C nL nH
Function	Set the left margin is（nL + nH × 256）dots

Parameter range	0 ⩽ nL ⩽ 255，0 ⩽ nH ⩽ 255
Default	No
Support	All
Notes	This command is only effective with the initial position of the line. Please check the photo as below:：  It can use the max. printing unit if it is set beyond the printing area.
Example	1b 40 1d 4c 08 00 30 31 32 0d 0a 30 31 32 0d 0a

Set relative to print position

Name	Set relative to print position
Code	ASCII ： ESC \ nL nH DEC ： 27 92 nL nH HEX ： 1B 5c nL nH
Function	Based on the current position, by using horizontal or vertical motion unit, set the print starting position This command sets the print position from the current position to [(nL+nH*256)]*0.125mm]distance
Parameter range	0 ⩽ nL ⩽ 255 0⩽ nH ⩽ 255
Default	No
Notes	Any out of the printable area of the Settings are ignored When distance N point to right： nL+nH*256=N When distance N point to left：(reverse direction） nL+nH*256=65536-N In standard mode, use level of motor unit
Example	No

Set justification

Name	Set justification（left,middle,right）
Code	ASCII ： ESC a n DEC ： 27 97 n HEX ： 1B 61 n
Function	Set alignment to the whole line,n value is as below: n mode 0, 48 left

	1, 49 middle 2, 50 right
Parameter range	0 ≤ n ≤ 2 or 48 ≤ n ≤ 50
Default	n = 0
Notes	This command setting is disabled when ESC@,printer resets or power off.
Example	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

Choose and delete customized characters

Name	Choose and delete customized characters
Code	ASCII : ESC % n DEC : 27 37 n HEX : 1B 25 n
Function	choose or delete customized characters When n the least significant bit is 0，delete customized characters When n the least significant bit is 1，choose customized characters。
Parameter range	0 ≤ n ≤ 255
Default	0
Notes	When delete customized characters，automatically choose the internal character set.
Example	No

Define customized characters

Name	Define customized characters
Code	ASCII : ESC & y c1 c2 [x1 d1 ... d (yx1)] ... [xk d1 ... d(y x k)] DEC : 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)]
Function	Define user customize characters。 y assigns vertical direction bytes. c1 assigns initial character code,c2 assigns ending character code xk assigns horizontal direction dots.
Parameter range	x y rang is correspond with internal fonts. If choosing 6*12 font,y = 2， 0 ≤ x ≤ 6 If choosing 12*24 font,y= 3， 0 ≤ x ≤ 12 32 ≤ c1 ≤ c2 ≤ 126 0 ≤ d1 ... d(y*xk) ≤255
Default	No
Notes	Definable character code range:from<20>H to <7E>H ASCII code(95 characters)。 It can define continuous character encoding for several characters.When it need

one character,make c1=c2.

D is character’ s dot data,dot mode starts from left side in the horizontal direction.It is blank for the rest dots in the right side.

Defined user defines characters data is (y*x) byte.

Set corresponding bit of printing dots is 1 or corresponding bit of no printing dots is 0.

The command can define every font to different self-defined character modes.Use ESC! to set fonts.

User can not define characters or download bitmap at the same time.Downloading bitmap will be eliminated.

User defined characters will be eliminated as below situations:

Execute ESC @。

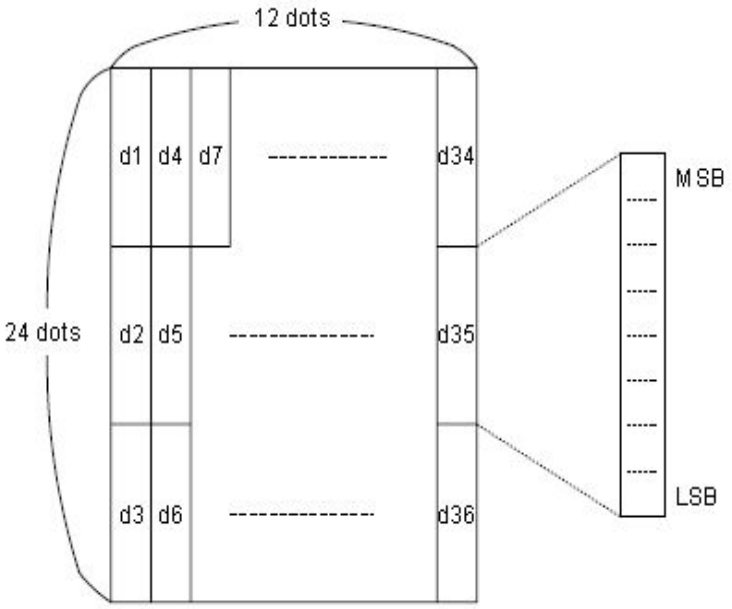
Execute GS *。

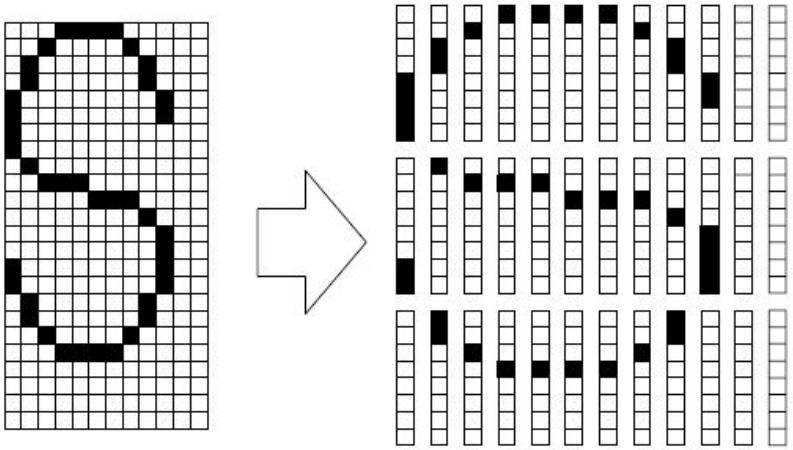
Execute ESC ?。

Printer reset or power off

Diagrm:

When set 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	①y = 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 ②y = 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 1b 25 01 20 20 0D 0A 1b 3f 20 30 20 30 20 0d 0a

Cancel user-defined characters

Name	Cancel user-defined characters
Code	ASCII : ESC ? n DEC : 27 63 n HEX : 1B 3F n
Function	Cancel user-defined characters which Coding designated by n
Parameter range	32 ⩽ n ⩽ 126
Default	No
Notes	This command cancels the patterns defined for the character codes specified by n. After the user-defined characters are canceled, the corresponding patterns for the internal characters are printed. This command deletes the pattern defined for the specified code in

	the font selected by ESC !. If a user-defined characters have not been defined, the printer ignores this command.
Example	No

Set and remove four times the angle of Chinese print

Name	Set and remove four times the angle of Chinese print
Code	ASCII ： FS W n DEC ： 28 87 n HEX ： 1C 57 n
Function	set and remove four times the angle of Chinese print When n the LSB of the least significant digit is 0，remove four times the angle of Chinese print When n the LSB of the least significant digit is 1， set four times the angle of Chinese print
Parameter range	0 ≤ n≤ 255
Default	n=0
Notes	Only n lowest effective； Four times in the Angle of mode,print character size is the same as set double width and double height mode to print character size at the same time With four times the Angle mode, the command is cancelled after the characters according to the size of the flexible character printing； Certain characters in a row height is not at the same time, all the characters in the bank based on baseline alignment； Character along the horizontal direction amplification, character to the right amplifier based on the left side of the character。
Example	No

Set the Angle of Chinese character word spacing

Name	Set the Angle of Chinese character word spacing
Code	ASCII ： FS S n1 n2 DEC ： 28 83 n1 n2 HEX ： 1C 53 n1 n2
Function	Set the left and right Chinese characters spacing for n1 and n2 Left characters spacing is [n1*0.125mm],right characters spacing is [n2*0.125mm]
Parameter range	0 ≤ n1 ≤ 255 0 ≤ n2≤ 255
Default	n1=0,n2=0
Notes	This command sets the character of flexible size of left and right spacing between characters.Setting of times wider pattern, the left and the right side of the letter spacing for twice the normal mode Can be in standard mode, use this command to set the spacing In standard mode, use level of motor unit

Example	No

Set up the Chinese characters to print mode combination

Name	Set up the Chinese characters to print mode combination
Code	ASCII ： FS ！ n DEC ： 28 33 n HEX ： 1C 21 n
Function	Set up Chinese characters print mode, the setting of the n is as follows：

bit	off/on	HEX	DEC	ASB status
0	--	--	--	None
1	--	--	--	None
2	off	00	0	Ban times wider pattern
	on	04	4	Allow times higher mode
3	off	00	0	Ban times higher mode
	on	08	8	Allow times higher mode
4	--	--	--	None
5	--	--	--	None
6	--	--	--	None
7	off	00	0	Underline mode is prohibited
	on	80	128	Allow the underline mode

Parameter range	0 ⩽ n ⩽ 255
Default	n=0
Notes	At the same time set up a wide mode and times in high mode under the condition of (including the right and left between characters)； At the same time set up a wide mode and times in high mode under the condition of (including the right and left between characters)； Certain characters in a line for times as high or higher character, all the characters in the bank will be aligned along the baseline； Underline the width of the designated by the FS -, has nothing to do with the size of the characters；
Example	No

Set Chinese mode

Name	**Set Chinese mode**
Code	ASCII ： FS & DEC ： 28 38 HEX ： 1C 26
Function	Set Chinese mode

Parameter range	No
Default	No
Notes	When the Chinese mode selected, all characters are ASCII code, It deals with one character per time. According to the first byte, and the second byte order processing code of ASCII code.
Example	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

Set and delete under line of Chinese character mode

Name	Set and delete under line of Chinese character mode
Code	ASCII ： FS – n DEC ： 28 45 n HEX ： 1C 2D n
Function	Set/delete underline mode,based on n value as below: n: Function 0,48: Delete underline mode 1,49: Set underline mode(1 dot coarse) 2,50: Set underline mode(2 dot coarse)
Parameter range	0 ≤ n ≤2，48≤ n ≤ 50
Default	n=0
Notes	Printer can print underline for all characters(including spacing in characters left side),but expect for setted blank by HT. Printer can not print underline for clockwise rotated 90 ° characters and white printing characters. When n is setted as 0 or 48,delete underline mode.Other data is not printed as underline,and the setted underline coarseness does not change before deleting underline mode.The default underline coarseness is 1 dot. It is not effective with underline coarseness to chang character size. Using ESC! can also set and delete underline mode.But pls note the last received command must be effective.
Example	No

Select an international character set

Name	**Select an international character set**
Code	ASCII ： ESC R n DEC ： 27 82 n HEX ： 1B 52 n
Function	Selects international character set n from the following table: n Character 0 U.S.A 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 Korea 14 Slovenia/Croatia 15 China
Parameter range	0 ⩽ n ⩽ 15
Default	0
Notes	
Example	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

Name	Select character code
Code	ASCII ： ESC t n DEC ： 27 116 n HEX ： 1B 74 n
Function	Selects n from character code N **Code Page** 0 CP437 [U.S.A., Standard Europe] 1 KataKana 2 CP850 [Multilingual] 3 CP860 [Portuguese] 4 CP863 [Canadian-French] 5 CP865 [Nordic] 6 WCP1251 [Cyrillic] 7 CP866 Cyrilliec #2 8 MIK [Cyrillic /Bulgarian] 9 CP755 [East Europe，Latvian 2] 10 Iran 11 Reserve 12 Reserve

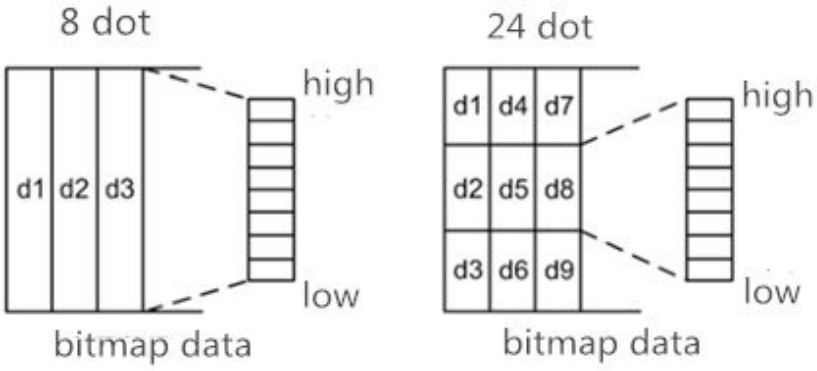
	13 Reserve 14 Reserve 15 CP862 [Hebrew] 16 WCP1252 Latin I 17 WCP1253 [Greek] 18 CP852 [Latina 2] 19 CP858 Multilingual Latin Ⅰ+Euro) 20 Iran II 21 Latvian 22 CP864 [Arabic] 23 ISO-8859-1 [West Europe] 24 CP737 [Greek] 25 WCP1257 [Baltic] 26 Thai 27 CP720[Arabic] 28 CP855 29 CP857[Turkish] 30 WCP1250[Central Eurpoe] 31 CP775 32 WCP1254[Turkish] 33 WCP1255[Hebrew] 34 WCP1256[Arabic] 35 WCP1258[Vietnam] 36 ISO-8859-2[Latin 2] 37 ISO-8859-3[Latin 3] 38 ISO-8859-4[Baltic] 39 ISO-8859-5[Cyrillic] 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 3] 45 Thai2 46 CP856 47 Cp874 255 GBK2312
Parameter range	0 ⩽ n ⩽ 255
Default	0
Notes	

Example	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

③Graphic printing command

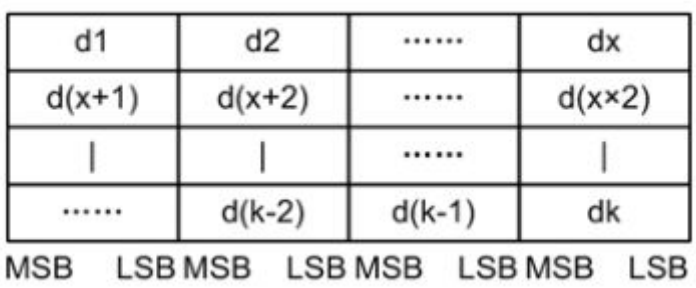
Graphics vertical module data fill

Name	Graphics vertical module data fill
Code	ASCII ： ESC * m Hl Hh [d]k DEC ： 27 42 m Hl Hh [d]k HEX ： 1B 2A m Hl Hh [d]k
Function	Print vertical module graphic data,the meanings as below: m is bit map format: m mode horizontal scale vertical scale 0 8dots single density ×2 ×3 1 8dots double density ×1 ×3 32 24dots single density ×2 ×1 33 24dots double density ×1 ×1 Hl、Hh is horizontal direction dots(Hl＋256×Hh） [d]k is bit map data k is for indicating bit map data bytes,don’t transfer.
Parameter range	XX58： m = 0、1、32、33 1 ≤ Hl + Hh × 256 ≤ 384 0 ≤ d ≤ 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 ≤ Hl + Hh × 256 ≤ 576 0 ≤ d ≤ 255 k = Hl + Hh × 256（when m = 0、1） k = (Hl + Hh × 256) × 3（when m = 32、33）
Default	No
Notes	[d]k corresponding bit is 1,which means this bit can print.While it is 0,it means this bit can not print. The printing area parts of exceeding graphics horizontal direction will be ignored. Bit map data and printing effects relations is as below:

	 The command is only filled printing buffer,graphics printing can start only after receiving printing commands.Printing buffer will clear after graphic printing. If you need to print big graphics,you can divide it into several pieces 8（m = 0、1）or 24（m = 32、33）dots graphics to print. After filling graphic data,you can continue to fill other information to make graphic and other information to print simultaneously. After filling bitmap,you can use ESC J(n=24)command to print,and also can use LF command to print.But LF command will make paper feed operation(according to line space to feed paper),and make graphic continuously between different lines.And can set line space to 0 to avoid to feed too much paper.(Dot matrix printer may drift when it starts,pls send data continuously if it breaks line.
Example	1B 40 1b 2a 00 0C 00 FF FF FF FF FF FF FF FF FF FF FF FF 1B 33 00 0A

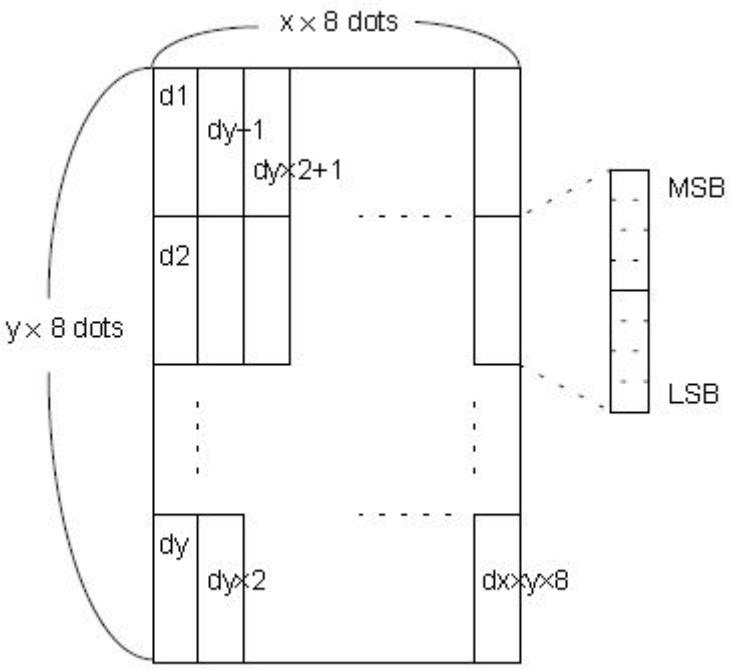
Print raster bit image

Name	Print raster bit image
Code	ASCII ： GS v 0 DEC ： 29 118 48 m xL xH yL yH [d]k HEX ： 1D 76 30 m xL xH yL yH [d]k
Function	Print the transverse modulus image data，Parameter as follows： m as bit image method： m Model VerticalDot Density HorizontalDot Density 0,48 Normal × 1 × 1 1,49 Double-width × 2 × 1 2,50 Double-height × 1 × 2 3,51 Quadruple × 2 × 2 xL、xH select the number of data bytes (xL+xH×256) in the horizontal direction for the bit image. yL, yH, select the number of data bits (yL+yH×256) in the vertical direction for the bit image. [d]k for Some figure data k for Some figure data bytes，k Used to signal hint, doesn’t need to transfer

Parameter range	XX58： 0 ≤ m ≤ 3；48 ≤ m ≤ 51 1 ≤ xL + xH×256 ≤ 48 0 ≤ yL ≤255，0 ≤ yH ≤255 0 ≤ d ≤ 255 k = (Hl + Hh×256)×(yL + yH×256) XX80： 0 ≤ m ≤ 3；48 ≤ m ≤ 51 1≤ xL + xH×256 ≤ 72 0 ≤ yL ≤ 255，0 ≤ yH ≤ 255 0 ≤ d ≤ 255 k = (Hl + Hh×256)×(yL + yH×256)
Default	No
Notes	[d] k bit is 1 shows the point to print accordingly, the corresponding bit is 0, then it shows that point not print at all If the image level bytes out of print area, beyond the part will be ignored This instruction execution according to the image size into the paper, does't effect from the ESC 2, ESC 3 line spacing After the instruction execution, print coordinates are reset to the left margin position and image content is cleared the bitmap data relationship with the printing effect is as follows:  This command with a printing function, data transfer and print, don't need to use the print command
Example	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 downloaded bit image

Name	Define downloaded bit image
Code	ASCII ： GS * x y d1...d(x×y×8) DEC ： 29 42 x y d1 ...d(x×y×8) HEX ： 1D 2A x y d1...d(x×y×8)
Function	Defines a downloaded bit image using the number of dots specified by x and y. x specifies the number of dots in the horizontal direction. y specifies the number of dots in the vertical direction.
Parameter	1 ≤ x ≤ 255

range	1 ≤ y ≤ 48 x*y ≤ 1536 0 ≤ d ≤ 255
Default	All
Notes	If x×y is out of the specified range, this command is disabled. The d indicates bit-image data. Data (d) specifies a bit printed as 1 and not printed as 0. The downloaded bit image definition is cleared when: ESC @ is executed. ESC & is executed. Printer is reset or the power is turned off. The following figure shows the relationship between the downloaded bit image and the printed data 
Example	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 downloaded bit image

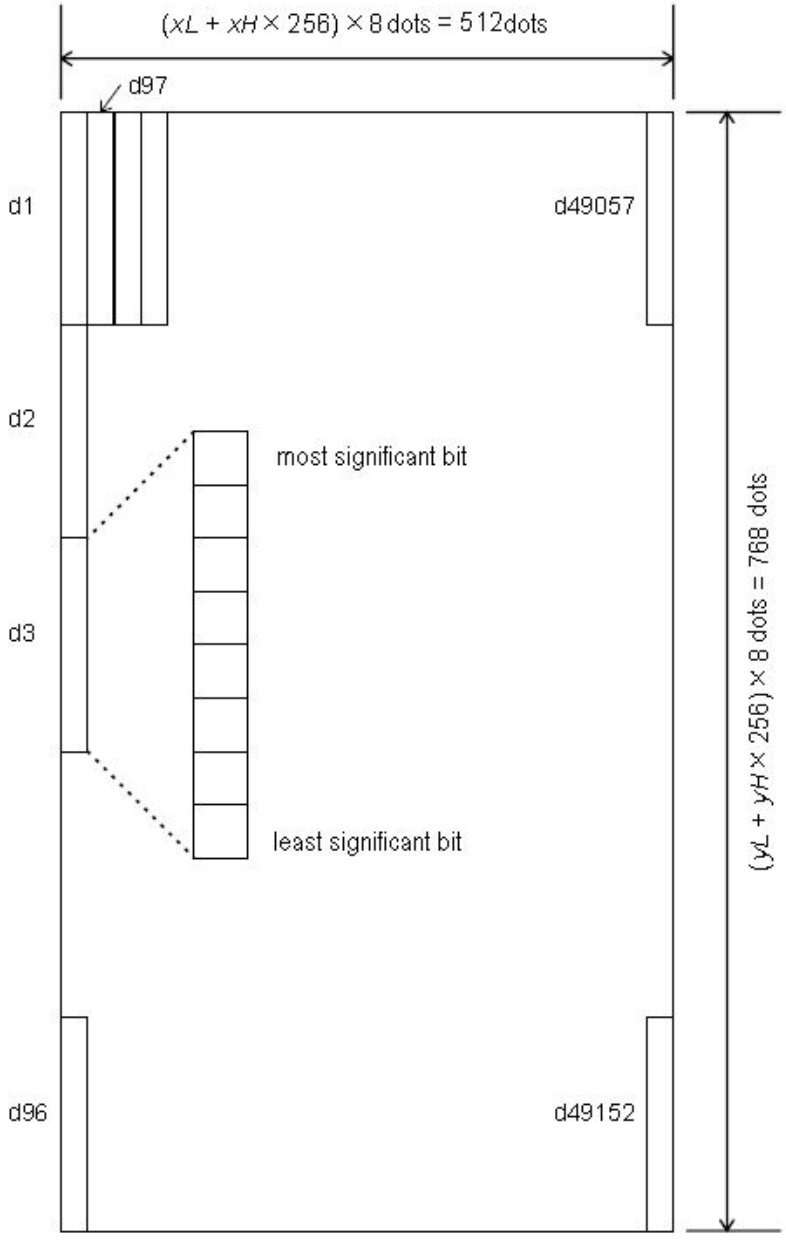
Name	Print downloaded bit image
Code	ASCII ： GS / m DEC ： 29 47 m HEX ： 1D 2F m
Function	Prints a downloaded bit image using the mode specified by m. m selects a mode from the table below:

	<table><tr><th>m</th><th>Model</th></tr><tr><td>0, 48</td><td>Normal</td></tr><tr><td>1, 49</td><td>Double-width</td></tr><tr><td>2, 50</td><td>Double-height</td></tr><tr><td>3, 51</td><td>Quadruple</td></tr></table>
Parameter range	0 ≤ m ≤ 3 48 ≤ m ≤ 51
Default	No
Notes	this command is ignored if a downloaded bit image has not been defined. In standard mode, this command is effective only when there is no data in the print buffer. This command has no effect in the print modes (emphasized, double-strike, underline, character size, or white/black reverse printing), except for upsidedown printing mode. If the downloaded bit-image to be printed exceeds the printable area, the excess data is not printed.
Example	No

Define NV bit image

Name	Define NV bit image
Code	ASCII ： FS q n [xL xH yL yH d1...dk]1...[xL xH yL yH d1...dk]n DEC ： 28 113 n [xL xH yL yH d1...dk]1...[xL xH yL yH d1...dk]n HEX ： 1C 71 n [xL xH yL yH d1...dk]1...[xL xH yL yH d1...dk]n
Function	Define the NV bit image specified by n. n specifies the number of the defined NV bit image. xL, xH specifies (xL + xH x 256) x8 dots in the horizontal direction for the NV bit image you are defining. yL, yH specifies (yL + yHx256)x8 dots in the vertical direction for the NV bit image you are defining.
Parameter range	1 ≤ n ≤ 255 0 ≤ xL ≤ 255 0 ≤ xH ≤ 3 (1 ≤ (xL+xH*256) ≤ 1023) 0 ≤ yL ≤ 255） 0 ≤ yH ≤ 1 (1 ≤ (yL+yH*256) ≤ 288) 0 ≤ d ≤ 255） k = (xL+xH*256)*(yL+yH*256)*8 Area = 64 k bytes of data
Default	No
Support	All
Notes	Frequent write command executions may damage the NV memory. Therefore, it is recommended to write the NV memory 10 times or less a day.

	The printer performs a hardware reset after the procedure to place the image into the NV memory. Therefore, user-defined characters, downloaded bit images should be defined only after completing this command. The printer clears the receive and print buffers and resets the mode to the mode that was in effect at power on. (this version is not support hardware reset) This command cancels all NV bit images that have already been defined by this command. From the beginning of the processing of this command till the finish of hardware reset, mechanical operations (including initializing the position of the print head when the cover is open, paper feeding using the FEED button, etc.) cannot be performed. During processing of this command, the printer is BUSY when writing data to the user NV memory and stops receiving data. Therefore it is prohibited to transmit the data, including real-time commands, during the execution of this command. NV bit image is a bit image defined in non-volatile memory by FS q and printed by FS p. In standard mode, this command is effective only when processed at thebeginning of the line. This command is effective when 7 bytes <FS yH> of the command areprocessed normally. When the amount of data exceeds the capacity left in the range defined by xL, xH, yL, yH, the printer processes xL, xH, yL, yH out of the defined range. In the first group of NV bit images, when any of the parameters xL, xH, yL, yH is out of the definition range, this command is disabled. In groups of NV bit images other than the first one, when the printer encounters xL, xH, yL, yH out of the defined range, it stops processing this command and starts writing into the NV images. At this time, NV bit images that haven't been defined are disabled (undefined), but any NV bit images before that are enabled. The d indicates the definition data. In data (d) a 1 bit specifies a dot to be printed and a 0 bit specifies a dot not to be printed. This command defines n as the number of a NV bit image. Numbers rise in order from NV bit image 01H. Therefore, the first data group [xL xH yL yH d1...dk] is NV bit image 01H, and the last data group [xL xH yL yH d1...dk] is NV bit image n. The total agrees with the number of NV bit images specified by the command FS p. The definition data for an NV bit image consists of [xL xH yL yH d1...dk]. Therefore, when only one NV bit image is defined n=1, the printer processes a data group [xL xH yL yH d1...dk] once. The printer uses ([data: (xL xH× 256)×(yL yH× 256)×8] [header :4]) bytes of NV memory.

	The definition area in this printer is a maximum of 192K bytes. This command can define several NV bit images, but cannot define bit image data whose total capacity [bit image data header] exceeds 192K bytes. The printer does not transmit ASB status or perform status detection during processing of this command even when ASB is specified. Once an NV bit image is defined, it is not erased by performing ESC @, reset, and power off. This command performs only definition of an NV bit image and does not perform printing. Printing of the NV bit image is performed by the FS pcommand. Diagram：when xL = 64, xH = 0, yL = 96, yH = 0 
Example	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 1C 70 01 00

Print NV bit image

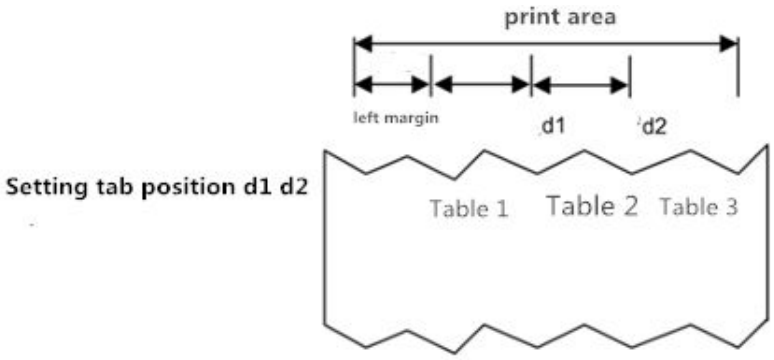
<table>
<tr><td>Name</td><td>Print NV bit image</td></tr>
<tr><td>Code</td><td>ASCII ： FS p n m
DEC ： 28 112 n m
HEX ： 1C 70 n m</td></tr>
<tr><td>Function</td><td>Prints NV bit image n using the mode specified by m.
<table>
<tr><th>m</th><th>Mode</th></tr>
<tr><td>0, 48</td><td>Normal</td></tr>
<tr><td>1, 49</td><td>Double-width</td></tr>
<tr><td>2, 50</td><td>Double-heigh
t</td></tr>
<tr><td>3, 51</td><td>Quadruple</td></tr>
</table></td></tr>
<tr><td>Parameter range</td><td>0 ≤ m ≤ 3
48 ≤ m ≤ 51
1 ≤ n ≤ 255</td></tr>
<tr><td>Default</td><td>No</td></tr>
<tr><td>Support</td><td>All</td></tr>
<tr><td>Notes</td><td>n is the number of the NV bit image (defined using the FS q command).
m specifies the bit image mode.
NV bit image is a bit image defined in non-volatile memory by FS q and printed by FS p.
This command is not effective when the specified NV bit image has not been defined.
In standard mode, this command is effective only when there is no data in the print buffer.
This command is not affected by print modes (emphasized, underline, character size, white/black reverse printing, or 90 rotated characters, etc.), except upside-down printing mode.
If the downloaded bit-image to be printed exceeds one line, the excess data is not printed.
This command feeds dots (for the height n of the NV bit image) in normal and double-width modes, and (for the height n 2 of the NV bit image) in doubleheight and quadruple modes, regardless of the line spacing specified by ESC 2 or ESC 3.
After printing the bit image, this command sets the print position to the beginning of the line and processes the data that follows as normal data.</td></tr>
<tr><td>Example</td><td>No</td></tr>
</table>

④Tab Commands

Horizontal tab

Name	Horizontal tab
Code	ASCII ： HT DEC ： 9 HEX ： 09
Function	Moves the print position to the next horizontal tab position.
Parameter range	No
Default	No
Notes	This command is ignored unless the next horizontal tab position has been set. If the next horizontal tab position exceeds the printing area, the printer sets the printing position to [printing area width + 1]. Horizontal tab positions are set with ESC D. If this command is received when the printing position is at [printing area width + 1], the printer executes print buffer-full printing of the current line and horizontal tab processing from the beginning of the next line
Example	No

Set horizontal tab positions

Name	Set horizontal tab positions
Code	ASCII ： ESC D [d]k NUL DEC ： 27 68 [d]k 0 HEX ： 1B 44 [d]k 00
Function	Set horizontal tab positions，Parameter as follows： d1 ... dk：Horizontal TAB position，take 8 dots as unit，end with NULL
Parameter range	XX58：1 ≤ d ≤ 46（d1 <d2 < …… dk ，1 ≤ k ≤ 16） XX80：1 ≤ d ≤ 70（d1 < d2 < …… dk ，1 ≤ k ≤ 16）
Default	Default location location A (12¬24)8 characters of the interval is (line 9 17 25 ...)
Support	All
Notes	TAB position show as follows:  Maximum support 16 TAB position set using this command will cancel the previous Settings TAB position

	k is used to signal, doesn’ t have to transport transport [d] k with NULL, means to the end. If the dk is less than or equal to dk - 1, means to the end, the remaining data as a common data processing TAB position switch can be made of HT when change the left margin, TAB position change at the same time when the ESC @, reset the printer, power outages, the setting command is out of effect.
Example	1B 44 04 06 08 0A 00 09 30 09 31 09 32 09 33 0D 0A

⑤One-dimension Bar Code Command

Set barcode HRI printing setting

Name	Set barcode HRI printing setting
Code	ASCII ： GS H n DEC ： 29 72 n HEX ： 1D 48 n
Function	Set barcode HRI printing position,n parameter meanings as below: n printing position 0，48 dont print 1，49 barcode upside 2，50 barcode down side 3，51 barcode upside and down side
Parameter range	0 ≤ n ≤ 3 或 48 ≤ n ≤ 51
Default	n = 0
Notes	When ESC @,printer resets, power off, the command setting is disabled.
Example	No

Set One-dimension bar code height

Name	Set One-dimension bar code height
Code	ASCII ： GS h n DEC ： 29 104 n HEX：1D 68 n
Function	Setting bar code height is n,the meaning of the parameters n as follows：  height 50  height 100
Parameter range	1 ≤ n ≤ 255
Default	n = 64
Notes	When ESC@,resetting printer,power off,the command will failure.

Example	No

Set One-dimension bar code width

Name	Set One-dimension bar code width 度
Code	ASCII ： GS w n DEC ： 29 119 n HEX ： 1D 77 n
Function	Setting bar code unit is n,the meaning of the parameters n as：  width 3  width 4
Parameter range	1 ≤ n ≤ 6
Default	n = 2
Notes	When ESC@,resetting printer,power off,the command will failure.
Example	No

Print One-dimension bar code

Name	Print One-dimension bar code
Code	(A) ASCII ： GS k m [d]k NUL DEC ： 29 107 m [d]k NUL HEX ： 1D 6B m [d]k NUL (B) ASCII ： GS k m n [d]k DEC ： 29 107 m n [d]k HEX ： 1D 6B m n [d]k
Function	Print One-dimension bar code,the meaning of all parameters as follows: m is encode mode. n is the length of encode data, only for (B),the difference between (A) and (B) is :(A) end with NULL,and (B) use the length of indication data. [d]k is the bar code data. K is the length of bar code data,just a sign not transmission. The relation of all parameter as below： **(Command A)**

m	Encode system	Bar code data（SP show spacing ）			
		Data length	k	Character set	Data（d）
0	UPC-A	fixed	k = 11，12	0~9	48≤d≤57
1	UPC-E	fixed	6≤k≤8， k = 11，12	0~9	48≤d≤57 [when k =

					7,8,11,12， d1 = 48]
2	JAN13 (EAN13)	fixed	k = 12，13	0~9	48≤d≤57
3	JAN8 (EAN8)	fixed	k = 7，8	0~9	48≤d≤57
4	CODE39	chang eable	1≤k	0~9，A~Z SP，$，%， *，+，-，.， /	48≤d≤57， 65≤d≤90， d = 32，36，37， 42，43，45，46， 47
5	ITF (Interleav ed 2 of 5)	chang eable	2≤k≤255 （even number）	0~9	48≤d≤57
6	CODAB AR (NW-7)	chang eable	1≤k	0~9，A~D， a~d $，+，-，.， /，:	48≤d≤57， 65≤d≤68， 97≤d≤100， d = 36，43，45， 46，47，58 (65≤d1≤68， 65≤dk≤68， 97≤d1≤100， 97≤dk≤100)

(Command B)

m	Encode system	Bar code data（SP show spacing ）			
		Data length	n	Character set	Data（d）
65	UPC-A	fixed	n = 11，12	0~9	48≤d≤57
66	UPC-E	fixed	6≤n≤8， n = 11，12	0~9	48≤d≤57 [when n = 7,8,11,12， d1 = 48]

	67	JAN13 (EAN13)	fixed	n = 12，13	0~9	48≤d≤57
	68	JAN8 (EAN8)	fixed	n = 7，8	0~9	48≤d≤57
	69	CODE3 9	chang eable	1≤n	0~9，A~Z SP，$，%，*，+，-，.，/	48≤d≤57， 65≤d≤90， d = 32，36，37，42，43，45，46，47
	70	ITF (Interlea ved 2 of 5)	chang eable	2≤n≤255 （even number）	0~9	48≤d≤57
	71	CODAB AR (NW-7)	chang eable	1≤n	0~9，A~D，a~d $，+，-，.，/，:	48≤d≤57， 65≤d≤68， 97≤d≤100， d = 36，43，45，46，47，58 (65≤d1≤68， 65≤dk≤68， 97≤d1≤100， 97≤dk≤100)
	72	CODE9 3	chang eable	1≤n≤255	00H~7FH	0≤d≤127
	73	CODE1 28	chang eable	1≤n≤255	00H~7FH C1H~C4H(F NC)	0≤d≤127 d = 193， 194,195,196
	74	UCC/EA N128	chang eable	1≤n≤255	00H~7FH C1H~C4H(F NC)	0≤d≤127 d = 193， 194,195,196
Parameter range	(A) 0 ≤ m ≤ 6 (B) 65 ≤ m ≤ 74					

Default	No
Notes	If the bar code width beyond print area, printer does not print. If needs feed during executed command ,it has no influence in ESC2,ESC3. ESC ! does not influence this command. After command execution, print position came back to starting location, Parameter m 0 ~ 6(A) and 65 ~ 71(B) choose the same encode system, the same effect. When m 0 ~ 6(A)，bar code data end up with NULL. When m 65 ~ 74(B)，n stands for data length. k use for sign, not transmission. When printing UPCA（m = 0 or 65），pay attention： Regardless of the input data length is 11 or 12, check digit automatically insert or error correction The starting character, middle separator, terminators automatically inserted When printing UPCE（m = 1 or 66），pay attention ： When the data length is 6, the system character (NSC) 0 automatically inserted When the data length is 7, 8, 11, and 12, the first system characters (NSC) d1 must be 0 Regardless of the input data length is 6, 7, 8, 11 or 12, check digit automatically insert or error correction Regardless of the input data length is 6, 7, 8, 11 or 12, barcode readable characters (HRI) show only 6, for the data does not include the system character (NSC) and the check code; The relation between transmit data and print data change

Transmit data										Print data					
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, should guarantee the d7, d8, d9, d10 is 0, d11 is 5 ~ 9

The starting character, terminators automatically inserted

Print EAN13 (m = 2 or 67), pay attention to:

Regardless of the length of the input data is 12 or 13, check digit automatically inserted or error correction

The starting character, middle separator, terminators automatically inserted

Print EAN8 (m = 3 or 68), pay attention to:

Regardless of the input data length is 7 or 8, check digit automatically insert or error correction

The starting character, middle separator, terminators automatically inserted

Print CODE39 (m = 4 or 69), pay attention to：

When d1 or not as the starting character/dn terminator "*", encoder automatically inserted into the "*"

When the data center meet with "*", encoder as the terminator, the rest of the data as a common data processing;

Check digit does not automatically calculate and add

Print ITF25 (m = 5 or 70),pay attention to:

Starting character and terminators automatically inserted

Check digit does not automatically calculate and add

Print CODABAR (NW - 7) (m = 6 or 71),pay attention to:

Starting operator and the end will not automatically inserts, requires the user to manually add, scope for "A" ~ "D" or "A" ~ "D"

Check digit does not automatically calculate and add

Print Code 93 (m = 72), pay attention to:

Starting character and terminators automatically inserted

Two check code automatic calculation and insert

When set bar code readable characters (HRI) print, without any said start/end HRI characters

When set (HRI) print bar code readable characters, control characters will be replaced with a space

Print CODE128 (m = 73),pay attention to:

Intelligent identification data coding system and realize the minimum length coding, without user set character set (including the starting character set) or switch character set

Functional characters FNC1 ~ FNC4 using C1H ~ C4H input

Check digit calculation and add automatically

When set (HRI) print bar code readable characters, control characters and FNC1 ~ FNC4 will use Spaces instead

Printing EAN128（m = 74）， pay attention to：

Basic construction:

Starting	FNC1	AI	Data	Check	Check	End

	<table><tr><td>character set</td><td></td><td></td><td>part</td><td>bit A</td><td>bit B</td><td>mark</td></tr><tr><td colspan="2">Automatical inserted</td><td colspan="3">（d1...dk）</td><td>Automatical inserted</td></tr></table> Linking construction：<table><tr><td>Starting character set</td><td>FNC 1</td><td>AI</td><td>Data part</td><td>Check bitA</td><td>FNC 1</td><td>AI</td><td>Data part</td><td>Check bitA</td><td>Check bitB</td><td>End mark</td></tr><tr><td colspan="2">Automatical inserted</td><td colspan="7">（d1...dk）</td><td>Automatical inserted</td></tr></table> Intelligent identification data coding system and realize the minimum length coding, user do not have to set character set (including the initial word Character set) or switch character set. Putting Functional characters FNC1 ~ FNC4 using C1H ~ C4H . User input data in AI don't need to use "(" ")" instructions, coding system automatically inserts,or will got something wrong. such as: GS 74 k 18 "019501234567890 *", 01 is the AI, the following is wrong: GS 74 18 k "(01) 9501234567890 *". When using connection structure, the middle need to insert FNC1 (C1H Decimal = 193). input example is as follows: GS 74 18 k "019501234567890 * 193" 029501234567890 * "" When setting (HRI) print, control characters will replace with a space, and remove FNC1 ~ FNC4.
Example	1b 40 1d 48 02 1d 6b 41 0c 31 32 33 34 35 36 37 38 39 30 31 32 1d 6b 42 0c 30 32 33 34 35 36 30 30 30 30 38 39 1d 6b 43 0c 30 32 33 34 35 36 30 30 30 30 38 39 1d 6b 44 08 30 32 33 34 35 36 30 30 1d 6b 45 08 30 32 33 34 35 36 30 30 1d 6b 46 08 30 32 33 34 35 36 30 30 1d 6b 47 08 41 32 33 34 35 36 30 41 1d 6b 48 08 41 30 32 33 34 35 36 41 1d 6b 49 08 41 30 32 33 34 35 36 41

⑥2-D bar code printing commands

Mode type of 2-D bar code

Name	Mode type of 2-D bar code
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	Setting mode type of two-dimension bar code to [n dot × n dot].
Parameter range	pL=3, pH=0 cn=49 fn=67 0 ≤ n ≤ 16
Default	n=3
Notes	Setting mode type of QR code to [n dot × n dot].
Example	No

Horizontal error correction of 2-D bar code

Name	Horizontal error correction of 2-D bar code
Code	ASCII ： GS (k pL pH cn fn n DEC ： 29 40 107 pL pH cn fn n HEX ： 1D 28 6b pL pH cn fn n
Function	Setting horizontal error correction of two-dimension bar code
Parameter range	pL=3, pH=0 cn=49 fn=69 48 ≤ n ≤ 51
Default	n=48
Notes	Setting horizontal error correction of two-dimension bar code
Example	No

n	Function	Reference: Recover representative (%)
48	Horizontal error correction L	7
49	horizontal error correction m	15
50	Horizontal error correction q	25
51	horizontal error correction h	30

Stored 2-D bar code data to data buffer

Name	Stored two-dimension bar code data to data buffer
Code	ASCII ： GS (k pL pH cn fn m d1…dk DEC ： 29 40 107 pL pH cn fn m d1…dk HEX ： 1D 28 6b pL pH cn fn m d1…dk
Function	Stored two-dimension bar code data to data buffer
Parameter	4 ≤ (pL + pH×256) ≤ 7092 (0 ≤ pL ≤ 255, 0 ≤ pH ≤ 28)

range	cn=49 fn=80 m=48 0 ≤ d ≤ 255 k = (pL + pH×256) - 3
Default	No
Notes	Stored two-dimension bar code data (d1...dk) to data buffer. (pL + pH (256) - 3) bytes after the m (d1... dk) as a graphic data is processed.
Example	No

Printing two-dimension bar code

Name	Printing two-dimension bar code
Code	ASCII : GS (k pL pH cn fn m DEC : 29 40 107 pL pH cn fn m HEX : 1D 28 6b pL pH cn fn m
Function	Printing QR code
Parameter range	pL=3, pH=0 cn=49 fn=81 m=48
Default	No
Notes	Printing two-dimension bar code. Users must consider two-dimension bar code graph space.
Example	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

Setting two-dimension bar code graph information

Name	Setting two-dimension bar code graph information
Code	ASCII : GS (k pL pH cn fn m DEC : 29 40 107 pL pH cn fn m HEX : 1D 28 6b pL pH cn fn m
Function	Setting two-dimension bar code graph information
Parameter range	ASCII : GS (k pL pH cn fn m Decimal : 29 40 107 pL pH cn fn m Hexadecimal : 1D 28 6b pL pH cn fn m
Default	Setting two-dimension bar code graph information The detailed graph information as follows:

	<table><tr><td>Transmit data</td><td>Hexadecimal</td><td>Decimal</td><td>Data type</td></tr><tr><td>Header</td><td>37H</td><td>55</td><td>1byte</td></tr><tr><td>Flag</td><td>36H</td><td>54</td><td>1byte</td></tr><tr><td>Width</td><td>30H-39H</td><td>48-57</td><td>1-5byte</td></tr><tr><td>Separator</td><td>1FH</td><td>31</td><td>1byte</td></tr><tr><td>Height</td><td>30H-39H</td><td>48-57</td><td>1-5byte</td></tr><tr><td>Separator</td><td>1FH</td><td>31</td><td>1byte</td></tr><tr><td>Fixed Value</td><td>31H</td><td>49</td><td>1byte</td></tr><tr><td>Separator</td><td>1FH</td><td>31</td><td>1byte</td></tr><tr><td>Other Information</td><td>30H or 31H</td><td>48 or 49</td><td>1byte</td></tr><tr><td>NUL</td><td>00H</td><td>0</td><td>1byte</td></tr></table> L and H data transmit graph:use dot for unit. Other information data transmit: “Hexadecimal=30H/Decimal=48” data not printing. “Hexadecimal=31H/Decimal=49”data not printing.
Notes	This command do not print two-dimension bar code graph. Users must consider two-dimension bar code graph space.
Example	No

Printing Two-dimension bar code

Name	Printing Two-dimension bar code
Code	ASCII ：GS k m v r nL nH d1…dk DEC ：29 107 97 v r nL nH d1…dk HEX ：1D 6B 61 v r nl nH d1…dk
Function	Printing Two-dimension bar code V of the specifications of the qr code, v = 0 means automatic selection of the specifications of the qr code R represents the level of error correction nL nH shows length of data d1…dk shows the data of printing two-dimension bar code
Parameter range	0 ≤ v ≤ 17 1 ≤ r ≤ 4 k = nL + 256 * nH
Default	No
Notes	Printing two-dimension bar code
Example	1b 40 1D 6B 61 08 02 08 00 30 31 32 33 34 35 36 37

Printing two-dimension bar code

<table>
<tr><td>Name</td><td>Printing two-dimension bar code</td></tr>
<tr><td>Code</td><td>ASCII ：ESC Z m n k dL dH d1…dn
DEC ：27 90 m n k dL dH d1…dn
HEX ：1B 5A m n k dL dH d1…dn</td></tr>
<tr><td>Function</td><td>①PDF417：bar code type is 0
M to specify the column number of the qr code.（1 ≤m ≤ 30）
When barcode image is damaged, n specified security and stability of recovery.（1 ≤n ≤ 8）
K is used to define the ratio of the horizontal and vertical.（2 ≤k≤ 5）
D is the length of the data and it contains 2 bytes.
dL: number the first byte is low
dH: the second byte is superior
d1…dn is data of bar code
By the bar code width GS w (n) command to influence the PDF417 type
②QR-CODE:bar code type is 2
M the specified version of the mark（1~40，0：auto size）
n to specify the CE level（L：7%，M：15%，Q：25%，H：30%）
K to specify component types（1~8）
d is the length of the data and it contains 2 bytes.
dL: number the first byte is low
dH: the second byte is superior
d1…dnis data of bar code
QR-CODE Model in the form：
<table>
<tr><td rowspan="2">Version</td><td colspan="4">Capacity (code) by the EC level</td></tr>
<tr><td>L：7%</td><td>M：15%</td><td>Q：25%</td><td>H：30%</td></tr>
<tr><td>1</td><td>19</td><td>16</td><td>13</td><td>9</td></tr>
<tr><td>2</td><td>34</td><td>28</td><td>22</td><td>16</td></tr>
<tr><td>3</td><td>55</td><td>44</td><td>34</td><td>26</td></tr>
<tr><td>4</td><td>80</td><td>64</td><td>48</td><td>36</td></tr>
<tr><td>5</td><td>108</td><td>86</td><td>62</td><td>46</td></tr>
<tr><td>6</td><td>136</td><td>108</td><td>76</td><td>60</td></tr>
<tr><td>7</td><td>156</td><td>124</td><td>88</td><td>66</td></tr>
<tr><td>8</td><td>194</td><td>154</td><td>110</td><td>86</td></tr>
<tr><td>9</td><td>232</td><td>182</td><td>132</td><td>100</td></tr>
<tr><td>10</td><td>274</td><td>216</td><td>154</td><td>122</td></tr>
<tr><td>11</td><td>324</td><td>254</td><td>180</td><td>140</td></tr>
<tr><td>12</td><td>370</td><td>290</td><td>206</td><td>158</td></tr>
<tr><td>13</td><td>428</td><td>334</td><td>244</td><td>180</td></tr>
<tr><td>14</td><td>461</td><td>365</td><td>261</td><td>197</td></tr>
<tr><td>15</td><td>523</td><td>415</td><td>195</td><td>223</td></tr>
<tr><td>16</td><td>589</td><td>453</td><td>325</td><td>253</td></tr>
<tr><td>17</td><td>647</td><td>507</td><td>367</td><td>283</td></tr>
</table>
</td></tr>
</table>

	18	721	563	397	313
	19	795	627	445	341
Parameter range	No				
Default	No				
Notes	No				
Example	No				

Print double QR CODE

Name	Print double QR CODE
Code	ASCII ： US Q m n p1H p1L l1H l1L ecc1 v1 d1…dn p2H p2L 12H l2L ecc2 v2 dk…dm DEC ： 27 81 m n p1H p1L l1H l1L ecc1 v1 d1…dn p2H p2L 12H l2L ecc2 v2 dk…dm HEX ： 1F 51 m n p1H p1L l1H l1L ecc1 v1 d1…dn p2H p2L 12H l2L ecc2 v2 dk…dm
Function	Print double QR CODE
Parameter range	QR number：0<m>3 QR module size：n(1~8) P1H,p1L to specify QR1 position：(p1H*256+p1L) L1H,l1L to specify QR1 length of data：（l1H*256+l1L） Ecc1 to specify QR1 Error correction level error：（0:7%, 1:15%,2:25%,3:30%) V1 to specify QR1 version of the symbol.(1~40, 0:auto size) D1…d2 is QR1data； P2H,p2L to specify QR2 position：(p2H*256+p2L) L2H,l2Lto specify QR2 length of data：（l2H*256+l2L） Ecc2to specify QR2 Error correction level error：（0:7%, 1:15%,2:25%,3:30%) V2 to specify QR2version of the symbol.(1~40, 0:auto size) Dk…dm is QR2 data
Default	No
Notes	If the module size than the print width, QR data will be regarded as normal.
Example	To Print string “0123456789” in QR Code at position 32 with ecc 1and Print string “987654321” in QR Code at position 192 with ecc 2, and module size 3, you should send commman as follow。 1f 51 02 03 00 20 00 0a 01 06 30 31 32 33 34 35 36 37 38 39 00 C0 00 0a 02 00 39 38 37 36 35 34 33 32 31 30

⑦Status Commands

Transmit status

Name	Transmit status
Code	ASCII ： GS r n DEC ： 29 114 n

<table>
<tr><td></td><td>HEX ： 1D 72 n</td></tr>
<tr><td>Function</td><td>Transmits the status specified by n as follows:
<table>
<tr><th>n</th><th>Function</th></tr>
<tr><td>1, 49</td><td>Transmits paper sensor status</td></tr>
</table></td></tr>
<tr><td>Parameter range</td><td>n = 1, 49</td></tr>
<tr><td>Default</td><td>No</td></tr>
<tr><td>Notes</td><td>When using a serial interface
When DTR/DSR control is selected, the printer transmits only 1 byte after confirming the host is ready to receive data (DSR signal is SPACE). If the host computer is not ready to receive data (DSR signal is MARK), the printer waits until the host is ready.
When XON/XOFF control is selected, the printer transmits only 1 byte without confirming the condition of the DSR signal.
This command is executed when the data in the receive buffer is developed. Therefore, there may be a time lag between receiving this command and transmitting the status, depending on the receive buffer status.
When Auto Status Back (ASB) is enabled using GS a, the status transmitted by GS r and the ASB status must be differentiated using.
The status types to be transmitted are shown below:
<table>
<tr><th>Bit</th><th>Off/On</th><th>Hex</th><th>Decimal</th><th>Status for ASB</th></tr>
<tr><td>0,1</td><td>-</td><td>-</td><td>-</td><td>Undefined.</td></tr>
<tr><td rowspan="2">2,3</td><td>Off</td><td>00</td><td>0</td><td>Paper roll end sensor: paper adequate.</td></tr>
<tr><td>On</td><td>(0C)</td><td>(12)</td><td>Paper roll end sensor: paper near end.</td></tr>
<tr><td>4</td><td>Off</td><td>00</td><td>0</td><td>Not used. Fixed to Off.</td></tr>
<tr><td>5,6</td><td>-</td><td>-</td><td>-</td><td>Undefined.</td></tr>
<tr><td>7</td><td>Off</td><td>00</td><td>0</td><td>Not used. Fixed to Off.</td></tr>
</table>
Paper sensor status (n = 1, 49):
When the paper end sensor detects a paper end, the printer goes offline and does not execute this command. Therefore, bits 2 and 3 do not transmit the status of paper end.</td></tr>
<tr><td>Example</td><td>No</td></tr>
</table>

To pass the host the printer status

Name	To pass the host the printer status

<table>
<tr><td>Code</td><td>ASCII ： GS v
DEC ： 27 118
HEX ： 1B 76</td></tr>
<tr><td>Function</td><td>Delivering a byte to host printer status.
Only the serial printer effectively.
Send bytes are defined as follows：
<table>
<tr><td>byte</td><td>function</td><td>number</td></tr>
<tr><td>0</td><td></td><td></td></tr>
<tr><td>1</td><td></td><td></td></tr>
<tr><td>2</td><td>No paper</td><td>1</td></tr>
<tr><td>3</td><td>Printer faults</td><td>1</td></tr>
<tr><td>4</td><td>0</td><td>0</td></tr>
<tr><td>5</td><td></td><td></td></tr>
<tr><td>6</td><td>The heating temperature is too high</td><td>1</td></tr>
<tr><td>7</td><td></td><td></td></tr>
</table></td></tr>
<tr><td>Default</td><td>No</td></tr>
<tr><td>Notes</td><td>No</td></tr>
<tr><td>Example</td><td>No</td></tr>
</table>

Transfer to the host state of peripheral devices

<table>
<tr><td>Name</td><td>Transfer to the host state of peripheral devices</td></tr>
<tr><td>Code</td><td>ASCII ： ESC u
DEC ： 27 117
HEX :1B 75</td></tr>
<tr><td>Function</td><td>Peripheral devices to the host state, only the type serial printer effectively.
Send bytes in a definition
byte 0：open cashbox（0）/close electrical level（1）
byte 4：the constant is 0</td></tr>
<tr><td>Default</td><td>No</td></tr>
<tr><td>Notes</td><td>No</td></tr>
<tr><td>Example</td><td>No</td></tr>
</table>

Allow, banning state upload automatically

<table>
<tr><td>Name</td><td>Allow, banning state upload automatically</td></tr>
<tr><td>Code</td><td>ASCII ： GS a n
DEC ： 27 97 n
HEX ： 1D 61 n</td></tr>
<tr><td>Function</td><td>Only the serial printer effectively
n are defined as follows：
<table>
<tr><td rowspan="2">byte</td><td rowspan="2">function</td><td colspan="2">Number</td></tr>
<tr><td>0</td><td>1</td></tr>
<tr><td>0</td><td>Fixed 0</td><td></td><td></td></tr>
<tr><td>1</td><td></td><td></td><td></td></tr>
</table></td></tr>
</table>

	2	Allow, banning state upload automatically	Ban	Allow	
	3-4				
	5	Banning and allwo ERROR set BUSY RTS=BUSY	Ban	Allow	
	6-7				
Default	No				
Notes	When effective, printer found state changes, the state automatically sent to the host				
Example	No				

Real-time transmit status

Name	Real-time transmit status
Code	ASCII ： DLE EOT n DEC ： 16 4 n HEX ： 10 04 n
Function	According to parameter below,the situation of real-time transmit printer,n stands for printer situation: N=1:transmit printer situation N=2:transmit off-line situation N=3:transmit error situation N=4:transmit paper sensor situation
Parameter range	1 ≤ n ≤ 4
Default	No
Support	All

Notes

•Printer return immediately after receiving the command associated state

• this command try not to put in command list between 2 or more bite .

Though printer being forbid by ESC=,this command still effective.

Printer transmit current situation ,each situation show by 1 bite data.

It is not sure host computer will receive printer transmit situation.

Printer executed immediately after received the command.

The command only effective for serial printer.Printer start to work immediately after receiving this command at any situation.

n=1：printer status

Bit	0/1	Hexadecimal	decimalism	Function
0	0	00	0	Fixed 0
1	1	02	2	Fixed 1
2	0	00	0	Open one or two cashbox （no cashbox=0）
	1	04	4	Turn off two cashbox
3	0	00	0	On-line
	1	08	8	Off-line
4	1	10	16	Fixed1
5,6		--	--	undefined
7	0	00	00	Tear up the paper
	1	80	96	Not tear up the paper yet

n=2：off-line situation

bite	0/1	Hexadecimal	decimalism	Function
0	0	00	0	Fixed 0
1	1	02	2	Fixed 1
2	0	00	0	Turn off upper cover
	1	04	4	Open upper cover
3	0	00	0	Not put feed key yet

	1	08	8	Put feed key
4	1	10	16	Fixed 1
5	0	00	0	Paper enough
	1	20	32	Paper shortage
6	0	00	00	Correction
	1	40	64	Mistake
7	0	00	0	Fixed 0

n=3：transmit error situation

bite	0 / 1	Hexadecimal	decimalism	Function
0	0	00	0	Fixed 0
1	1	02	2	Fixed 1
2		--	--	Undefined
3	0	00	0	No cutting mistake
	1	08	8	Cutting mistake
4	1	10	16	Fixed 1
5	0	00	0	No unrecoverable mistake
	1	20	32	Unrecoverable mistake
6	0	00	00	Printer head temp.and voltage normal
	1	40	64	Printer head temp.and voltage exceed range
7	0	00	0	Fexed 0

n=4：paper sensor situation

bite	0 / 1	Hexadecimal	decimalism	Function
0	0	00	0	Fixed 0
1	1	02	2	Fixed 1

	2，3	0	00	0	Paper
		1	0C	12	Paper near-end
	4	1	10	16	Fixed 1
	5，6	0	00	0	Paper
		1	60	96	Without paper
	7	0	00	0	Fixed 0
Example	10 04 01 10 04 02 10 04 03 10 04 04				

⑧Page mode commands

Print and return to standard mode 0

Name	Print and return to standard mode 0
Code	ASCII ： FF DEC ： 12 HEX ： 0C
Function	All printed will print buffer data, and returns the standard model
Parameter range	No
Default	No
Notes	The command is valid only in page mode Clear page buffer data after print

	This command to set the print position for the starting point
Example	No

Print the data in the page mode

Name	Print the data in the page mode
Code	ASCII ： ESC FF DEC ： 27 12 HEX ： 1B 0C
Function	Page mode, concentrated in the print area to print all the data in the buffer
Parameter range	No
Default	No
Notes	The command is valid only in page mode
Example	No

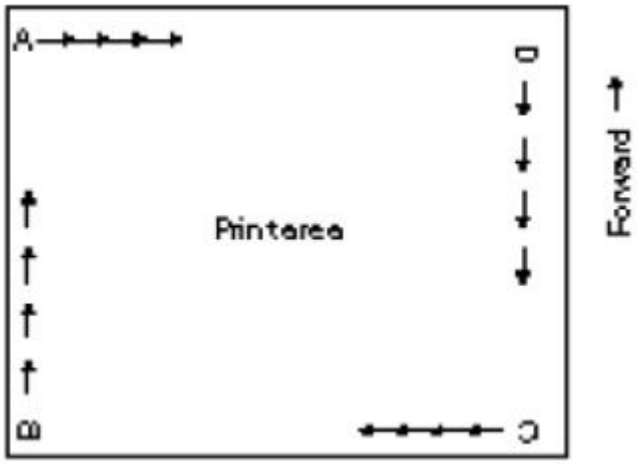
Choose page mode

Name	Chose page mode
Code	ASCII ： ESC L DEC ： 27 76 HEX ： 1B 4C
Function	From the standard mode to switch to the page mode
Parameter range	No
Default	No
Notes	The command is valid only in page mode In standard mode, the command is only valid at the time of the beginning of a line Open the printer power，print reset or use the ESC@ command，printer return to the standard mode
Example	No

Choose standard mode

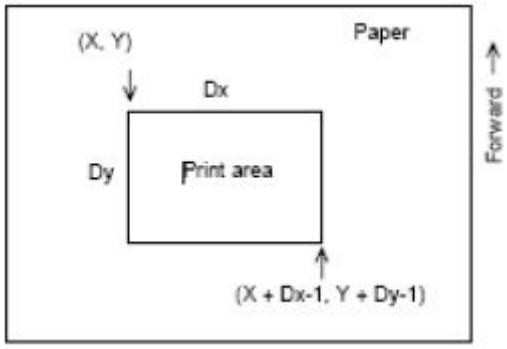
Name	Choose standard mode
Code	ASCII ： ESC S DEC ： 27 83 HEX ： 1B 53
Function	From page mode switch to standard mode
Parameter range	No
Default	No
Notes	The command is valid only in page mode Clear buffer data in page mode Command line sets the print position to the starting point Through setting the ESC W set print area is initialized
Example	No

choose print direction in page mode

<table>
<tr><td>Name</td><td>choose print direction in page mode</td></tr>
<tr><td>Code</td><td>ASCII ： ESC T n
DEC ： 27 84 n
HEX ： 1B 54 n</td></tr>
<tr><td>Function</td><td>In page mode select print direction and starting position
N parameter to specify the direction of the print and starting position as shown below：
<table>
<tr><th>a</th><th>Print direction</th><th>Initial position</th></tr>
<tr><td>0,48</td><td>From left to right</td><td>Top left corner（In the figure A）</td></tr>
<tr><td>1,49</td><td>From top to bottom</td><td>Left bottom（In the figure B）</td></tr>
<tr><td>2,50</td><td>From right to left</td><td>Right bottom（In the figure C）</td></tr>
<tr><td>3,51</td><td>From top to bottom</td><td>Top right corner（In the figure D）</td></tr>
</table>

</td></tr>
<tr><td>Parameter range</td><td>0 ≤ n ≤ 3, 48≤ n ≤ 51</td></tr>
<tr><td>Default</td><td>n=0</td></tr>
<tr><td>Notes</td><td>Printer only perform internal operation in enter this command in standard mode.This command does not affect the standard mode of printing；
This command set location of buffer data in ESC W set printing area</td></tr>
<tr><td>Example</td><td>No</td></tr>
</table>

set print area in page mode

<table>
<tr><td>Name</td><td>set print area in page mode</td></tr>
<tr><td>Code</td><td>ASCII ： ESC W xL XH yL yH dxL dxH dyL dyH
DEC ： 27 87 xL XH yL yH dxL dxH dyL dyH
HEX ： 1B 57 xL XH yL yH dxL dxH dyL dyH</td></tr>
<tr><td>Function</td><td>X0,y0,dx,dyrespectively defined level starting position, vertical starting position, print area width and the height of the print area..
Each value calculation for the print area is as follows：
X0=[(xL+xH*256)*0.125mm]</td></tr>
</table>

	y0=[(yL+yH*256)*0.125mm] dx=[(dxL+dxH*256)*0.125mm] dy=[(dyL+dyH*256)*0.125mm]
Parameter range	0 ≤ xL,xH,yL,yH,dxL,dxH,dyL,dyH≤255 (Not including dxL=dxH=0 或 dyL=dyH=0)
Default	No
Notes	Printer only perform internal operation in enter this command in standard mode.This command does not affect the standard mode of printing； If the setting of starting position and vertical starting position outside the printable range, printer stop command processing and subsequent data according to the general data processing； If the print area the width and height is set to 0, printer stop command processing and subsequent data according to the general data processing； This command sets the location of the data buffer is ESC T specified the location within print area； If the original position (horizontal width + print area) outside the printable area, print area width is automatically set to （Printable area - level starting position）； If the original position (vertical + print area height) outside the printable area, highly automatic print area is set to （Vertical printable area - vertical starting position）； Use 0.125 mm spacing level starting position and width of the print area, and use the 0.125 mm spacing vertical starting position and the height of the print area； X0,y0,dx 和 dy respectively defined level starting position, the vertical starting position, print area, width, height of print area, set print area as shown in the figure below： 
Example	No

Set the absolute vertical print position in page mode

Name	Set the absolute vertical print position in page mode
Code	ASCII ： GS $nL nH DEC ： 29 36 nL nH HEX ： 1D 24 nL nH
Function	The buffer data in page mode setting absolute vertical print starting position. This command will definitely print position is set to[(nL+nH*256)*0.125mm]

Parameter range	0 ≤ nL≤255, 0 ≤ nH≤255
Default	No
Notes	The command is valid only in page mode If [(nL+nH*256)*（Vertical or horizontal motion unit）]outside the specify the print area，this command is ignored Level starting buffer location does not move Refer to the starting position designated by ESC T The command operation as follows, depending on the starting position of the ESC T set print area When setting the starting position in the upper left or lower right, the command set absolute position in the vertical direction When the starting position is set in the upper right or lower left, the command set absolute position on the horizontal direction
Example	No

Set the relative vertical print position in page mode

Name	Set the relative vertical print position in page mode
Code	ASCII ： GS \ nL nH DEC ： 29 92 nL nH HEX ： 1D 5C nL nH
Function	Page mode setting from the current position, the relative vertical print starting position The command to set the distance from the current position is[(nL+nH*256)*0.125mm]
Parameter range	0 ≤ nL≤255, 0 ≤ nH≤255
Default	No
Notes	Specify N for downward movement： nL+nH*256=N Specify N for upward movement (negative direction), with 65536's complement Specify N for upward movement： nL+nH*256=65536-N Anything beyond the specified print area Settings are ignored Set the starting position to print area in the upper left or right, using vertical motion unit（y） Set the starting position to print area at the upper or lower left, use level of motor unit（x）
Example	No

⑨Other Command

Initialize printer

Name	Initialize printer

Code	ASCII ： ESC @ DEC ： 27 64 HEX ： 1B 40
Function	Initialize printer: Eliminate printing buffer All data recover to default.
Parameter range	No
Default	No
Notes	No
Example	No

Printing self-test page

Name	Printing self-test page
Code	ASCII ： DC2 T DEC ： 18 94 HEX ： 12 54
Function	Printer prints a test page, contains the printer on the program version, communication interface type, the code page and some other data.
Parameter range	No
Default	No
Notes	No
Example	1B 40 12 54

choose cutting mode and cut paper

Name	choose cutting mode and cut paper
Code	① ASCII ： GS V m DEC ： 29 86 m HEX ： 1D 56 m ② ASCII ： GS V m n DEC ： 29 86 m n HEX ： 1D 56 m n
Function	Choose a kind of cut mode and cut. The cut modes as below options:
Parameter range	① m = 0，48，1，49 ② m = 66， 0 ≤ n ≤ 255
Default	No

M	Cutting mode
0, 48	Full cut
1, 49	Half cut
66	Feed paper and cut paper

Notes	This command is only effective with the head of line. • m = 0，48，1， 49，paper cut directly. • When n = 66，paper feed[the distance between printing position to cutter+n X longitudinal command increment. • Landscape command increment and longitudinal command increment are setted as per GSP commands. • Paper feed qty is calculated as longitudinal command increment.
Example	1B 40 30 30 30 0D 0A 1D 56 00 30 30 30 0D 0A 1D 56 01 30 30 30 0D 0A 1D 56 42 00

Full cuts

Name	Full cuts
Code	ASCII ： ESC i DEC ： 27 105 HEX ： 1B 69
Function	Choose all cuts or partly cuts
Parameter range	No
Default	No
Notes	No
Example	1B 40 30 30 30 0D 0A 1B 69

Partly cuts

Name	Partly cuts
Code	ASCII ： ESC m DEC ： 27 109 HEX ： 1B 6D
Function	Choose all cuts or partly cuts
Parameter range	No
Default	No
Notes	No
Example	1B 40 30 30 30 0D 0A 1B 6D

A cashbox impulse

<table>
<tr><td>Name</td><td>A cashbox impulse</td></tr>
<tr><td>Code</td><td>ASCII ： ESC p m t1 t2
DEC ： 27 112 m t1 t2
HEX ： 1B 70 m t1 t2</td></tr>
<tr><td>Function</td><td>Output pulse (designated by the t1 and t2) to m the specified pin</td></tr>
<tr><td>Parameter range</td><td>m=0,1,48,49
0 ≤ t1 ≤ 255
0 ≤ t2 ≤ 255</td></tr>
<tr><td>Default</td><td>No</td></tr>
<tr><td>Notes</td><td>1、Cashbox pin designated by m
<table><tr><th>m</th><th>Function</th></tr><tr><td>0,48</td><td>Cashbox Open/close signal（connect pin2）</td></tr><tr><td>1,49</td><td>Cashbox Open/close signal（connect pin5）</td></tr></table>2、Open cashbox is [t1×2ms]， and close cashbox is [t2×2ms]。
3、When the t2 < = t1 printer doesn't deal with this command。</td></tr>
<tr><td>Example</td><td>1B 40
1B 70 00 10 32
1B 70 01 10 32</td></tr>
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