

# 58mm Portable Thermal Printer PTP-II Series

## Technical Manual



V.16.06.14

Instruction.....	4
1. Instruction List.....	4
2. Detail instruction.....	5
2.1 Printing and paper feed instruction.....	5
Printing and paper feed.....	5
Enter.....	6
Printing and paper feed N dots.....	6
Printing and paper feed N lines.....	6
2. Print setup instructions.....	7
Set the line spacing for N points.....	7
Set default for line spacing.....	8
Set the print position.....	9
Set the left margin.....	9
Set the character print mode.....	10
Set the character size.....	10
Set、 remove the white print.....	11
Set、 remove the underline.....	12
Set up the, remove clockwise rotate 90 ° to print.....	12
Set the print alignment.....	13
Set the Chinese character pattern.....	14
Cancel the Chinese character pattern.....	14
Choose or cancel the user custom character set.....	15
Define the user custom character set.....	16
Cancel the user-defined character.....	19
Choose international character sets.....	19
Select the character code page.....	20
2.3 Graphics printed instructions.....	20

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Graphics vertical modulus according to fill.....	21
Image level take modulus according to print.....	23
Define the bitmap.....	25
Printed under the bitmap.....	26
Define the NV bitmap.....	27
Print NV bitmap.....	31
2.4 TAB order.....	32
Horizontal TAB.....	32
Settings TAB position.....	32
2.5 One dimensional barcode printing instructions.....	30
Set the barcode readable characters (HRI) print position.....	30
Set a dimensional barcode height.....	32
Set a dimensional barcode width.....	32
one-dimensional bar code Printing.....	34
2.6 Status inquiry instruction.....	39
Transfer state.....	39
Real-time transmission state.....	41
2.7 Printing the QR code.....	40
Set the QR code module type.....	40
2.8 Other instruction.....	41
Initialization printer.....	41
Print self-test page.....	42

# Instruction

## 1. Instruction List

LF	Printing and paper feed	Instructions of Print and paper feed
CR	Enter	
ESC J	Printing and paper feed N dots	
ESC d	Printing and paper feed N lines	
ESC 3	Set the line spacing for N points	Printing setup instructions
ESC 2	Set the line spacing for default	
ESC \$	Set the print position	
GS L nL nH	Set the left Quantity of blank	
ESC !	Set the character print mode	
GS ! n	Set the character size	
GS B n	Set, remove the white print	
ESC - n	Set, remove the underline	
ESC V n	Set, remove 90 ° rotation printing	
ESC a	Set the print alignment	
FS &	Set the Chinese character pattern	
FS .	Cancel the Chinese character pattern	
ESC % n	Choice, cancel the user-defined character set	
ESC &	Define the user custom character set	
ESC ? n	Cancel the user-defined character	
ESC R n	Choose international character sets	
ESC t n	Select the character code page	
ESC *	Graphics vertical modulus data filling	Graphics printing instructions
GS v 0	Image level take modulus according to print	
GS *	Define the bitmap	
GS / m	Printed under the bitmap	
FS q	Define the NV bitmap	
FS p n m	Print NV bitmap	TAB order
HT	Horizontal tab	
ESC D	Set up horizontal TAB	

GS H	Set a dimensional barcode readable characters (HRI) print position	One dimensional barcode printing instructions
GS h	Set a dimensional barcode height	
GS w	Set a dimensional barcode width	
GS k	Print one dimension code	
GS k	Print the QR code	QR code printed instructions
	Print the line segment	Curve printing the instruction
GS r n	transfer state	Status inquiry instruction
DLE EOT n	Real-time transmission state	
ESC @	Initialization printer	Other instruction
DC2 T	Print self-test page	

## 2. Detail instruction

### 2.1 Printing and paper feed instruction

#### Printing and paper feed

Command Name	Printing and paper feed
Command Code	ASCII : LF Decimal : 10 Hexadecimal : 0A
Functional description	Will be printed in the cache contents of print, and then based on the current line spacing is set into the paper a line, and adjust the print position to the next line starting position
Parameter range	Not
default	Not
Support model	All
attention	Not
Use example	Not

## Enter

Command Name	Enter
Command code	ASCII : CR Decimal : 13 Hexadecimal : 0D
Functional description	Printing position adjustment to initial position, not to a newline
Parameter range	not
default	not
Support model	All
attention	After return instruction, the new print data with bitwise "or" cover to print the original data in the cache
Use example	not

## Printing and paper feed N dots

Command Name	Printing and paper feed N dots
Command Code	ASCII : ESC J n Decimal : 27 74 n Hexadecimal : 1B 4A n
Functional description	Will print contents in the cache, and printing paper feed n points
Parameter range	$0 \leq n \leq 255$
default	Not
Support model	All
attention	When the cache of the printing is empty, only feed n points After the instruction execution, print position moves to the next line of the starting position
Use example	1b 40 30 31 32 1b 4a 10


## Printing and paper feed N lines

Command Name	Printing and paper feed N lines
--------------	---------------------------------

Command Code	ASCII : ESC d n Decimal : 27 100 n Hexadecimal : 1B 64 n
Functional description	Will print contents in the cache, and printing paper feed n line
Parameter range	$0 \leq n \leq 255$
default	Not
Support model	All
attention	The command to set the print starting position is the starting point
Use example	1b 40 30 31 32 1b 64 01

## 2. Print setup instructions

### Set the line spacing for N points

Command Name	Set the line spacing for n points
Command Code	ASCII : ESC 3 n Decimal : 27 51 n Hexadecimal : 1B 33 n
Functional description	Set the line spacing for n points
Parameter range	$0 \leq n \leq 255$
default	n = 33
Support model	All
attention	<p>Line spacing indicated as follows:</p>  <p>If set the line spacing is less than the maximum character height in a line, so the bank line spacing is equal to the maximum character level</p> <p>If the ESC 2, ESC @, reset the printer, printer power outage, line spacing restore to default values.</p>

Use 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 for line spacing

Command Name	Set default for line spacing
Command	ASCII : ESC 2
Code	Decimal : 27 50 Hexadecimal : 1B 32
Functional description	Set the line spacing to the default of 33 points
Parameter range	Not
default	Not
Support model	All
attention	Find Line spacing indicated detailes in ESC 3 instructions If set the line spacing is less than the maximum character height in a line, so the bank line spacing is equal to the maximum character level You can use the ESC 3 custom line spacing
Use example	Not

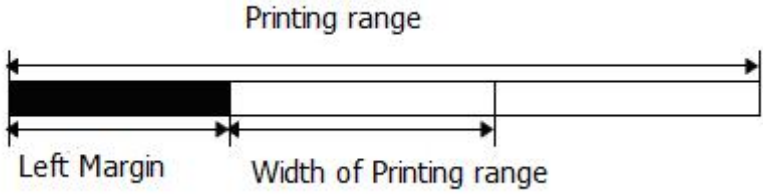


## Set the print position

Command Name	Set the print position
Command Code	ASCII : ESC \$ nL nH Decimal : 27 36 nL nH Hexadecimal : 1B 24 nL nH
Functional description	Adjust the print position to print starting position (nL nH + x 256) points
Parameter range	$0 \leq nL \leq 255, 0 \leq nH \leq 255$
default	Not
Support model	All
attention	This directive applies only to the bank, after a newline print position is reset to print starting position Beyond printing range is moved to the next line printing
Use example	1b 40 1b 24 08 00 30 31 32 0d 0a 30 31 32 0d 0a

## Set the left margin

Command Name	Set the left margin
Command Code	ASCII : GS L nL nH Decimal : 29 76 nL nH Hexadecimal : 1D 4C nL nH
Functional description	To set the left margin (nL nH + x 256)
Parameter range	$0 \leq nL \leq 255, 0 \leq nH \leq 255$
Default	Not
Support model	All

attention	<p>The command is valid only in a line of the starting position of the handle.</p> <p>Legend schematic is as follows:</p>  <p>If set beyond the printable area, use the maximum unit of printing</p>
Use example	<pre>1b 40 1d 4c 08 00 30 31 32 0d 0a 30 31 32 0d 0a</pre>

## Set the character print mode

Command Name	Set the character print mode			
Command Code	ASCII : ESC ! n Decimal : 27 33 n Hexadecimal : 1B 21 n			
Functional description	Set the character print mode (fonts, white, high horse, bold, times and times width, and the underline), the parameter n ,Defines as follows:			
	position	function	value	
			0	1
	0	font	normal	Shall character
	1	undefined		
	2	undefined		
	3	bold	cancel	setting
	4	double high	cancel	setting
	5	double width	cancel	setting
6	undefined			
7	underline	cancel	setting	

Parameter range	Not
default	n = 0
Support model	All
attention	The instruction for Chinese fonts and foreign fonts are effective When the ESC @, printer after reset, power outages, the setting of this directive invalidation
Use 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 the character size

Command Name	Set the character size																																																							
Command Code	ASCII : GS ! n Decimal : 29 33 n Hexadecimal : 1d 21 n																																																							
Functional description	<p>Set the character size for 1-8 times as wide, 1-8 times higher Defines as follows : Use 0 to 3 set character height 4 to 7 bits set character width as shown below :</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Table 1 Character width setting</p> <table border="1"> <thead> <tr> <th>Hexadecimal</th> <th>Decimal</th> <th>Width</th> </tr> </thead> <tbody> <tr><td>00</td><td>0</td><td>1(normal)</td></tr> <tr><td>10</td><td>16</td><td>2(double)</td></tr> <tr><td>20</td><td>32</td><td>3</td></tr> <tr><td>30</td><td>48</td><td>4</td></tr> <tr><td>40</td><td>64</td><td>5</td></tr> <tr><td>50</td><td>80</td><td>6</td></tr> <tr><td>60</td><td>96</td><td>7</td></tr> <tr><td>70</td><td>112</td><td>8</td></tr> </tbody> </table> </div> <div style="text-align: center;"> <p>Table 2 Character height setting</p> <table border="1"> <thead> <tr> <th>Hexadecimal</th> <th>Decimal</th> <th>Height</th> </tr> </thead> <tbody> <tr><td>00</td><td>0</td><td>1(normal)</td></tr> <tr><td>01</td><td>1</td><td>2(double)</td></tr> <tr><td>02</td><td>2</td><td>3</td></tr> <tr><td>03</td><td>3</td><td>4</td></tr> <tr><td>04</td><td>4</td><td>5</td></tr> <tr><td>05</td><td>5</td><td>6</td></tr> <tr><td>06</td><td>6</td><td>7</td></tr> <tr><td>07</td><td>7</td><td>8</td></tr> </tbody> </table> </div> </div>		Hexadecimal	Decimal	Width	00	0	1(normal)	10	16	2(double)	20	32	3	30	48	4	40	64	5	50	80	6	60	96	7	70	112	8	Hexadecimal	Decimal	Height	00	0	1(normal)	01	1	2(double)	02	2	3	03	3	4	04	4	5	05	5	6	06	6	7	07	7	8
Hexadecimal	Decimal	Width																																																						
00	0	1(normal)																																																						
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20	32	3																																																						
30	48	4																																																						
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07	7	8																																																						
Parameter range	Not																																																							

default	n = 0
Support model	All
attention	This directive except the HRI characters of Chinese fonts and foreign fonts are effective When the ESC @, printer after reset, power outages, the setting of this directive invalidation
Use example	1b 40 1d 21 11 30 31 32 0d 0a 30 31 32 0d 0a

## Set、 remove the white print

Command Name	Set、 remove the white print
Command Code	ASCII : GS B n Decimal : 29 66 n Hexadecimal : 1d 42 n
Functional description	To set or remove the white print mode. When n the least significant bit is 0, the white mode off. When n the least significant bit is 1, the white open mode.
Parameter range	Not
default	n = 0
Support model	All
attention	Only n lowest effective. The command to the built-in character and user-defined character are effective. When the white model is opened, it also effective to ESC SP set of blank. This command does not affect the bitmap, user-defined bitmap, bar code, HRI characters, and space by HT skip, ESC \$. This command does not affect the line spacing. Reverse mode takes precedence over the underline. When set against the white model, even the underline mode open are prohibited from (but not cancelled). When the ESC @, printer after reset, power outages, the setting of this directive is valid.
Use example	1b 40 1d 42 01 30 31 32 0d 0a 30 31 32 0d 0a

## Set、 remove the underline

Command Name	Set、 remove the underline		
Command Code	ASCII : ESC - n Decimal : 27 45 n Hexadecimal : 1B 2D n		
Functional description	Based on the value of n, set/remove the underline mode:		
	n	function	
	0, 48	Remove the underline mode	
	1, 49	Set the underline mode (1 point of coarse )	
	2, 50	Set the underline mode (2 point of coarse)	
Parameter range	$0 \leq n \leq 2, 48 \leq n \leq 50$		
default	n = 0		
Support model	All		
attention	<p>Printers can give all characters underscore (including character to the right of the interval), except by HT set blank.</p> <p>The printer cannot give clockwise rotate 90 ° characters and the white print underscore characters.</p> <p>When by setting the value of n to 0 or 48 to remove the underline mode, the following data is not be printed underline, and remove the underline mode before setting the underlined roughness do not change. By default the underline roughness is 1 point.</p> <p>Change the character size does not affect the current underlined roughness.</p> <p>Use the ESC! Also can be set or remove the underline mode. Note, however, the last received command is valid.</p>		
Use example	<pre>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</pre>		

## Set up the, remove clockwise rotate 90 ° to print

Command Name	Set up 、 remove clockwise rotate 90 ° to print
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Command Code	ASCII : ESC V n Decimal : 27 86 n Hexadecimal : 1B 56 n
Functional description	Set or remove 90 ° rotation printing. When n equals 0 or 48, lifting 90 ° rotation printing. When n equals 1 or 49, set up 90 ° rotation printing.
Parameter range	$0 \leq n \leq 1$ , $48 \leq n \leq 49$
default	n = 0
Support model	All
attention	When set up the underline mode, in the case of characters clockwise rotate 90 <sup>0</sup> , the printer is not underlined. In clockwise rotate 90 <sup>0</sup> mode, times and times higher command wide direction and general mode of the characters x magnification high command wide zoom in the opposite direction of the characters. When the ESC @, printer after reset, power outages, the setting of this Directive invalidation.
Use example	1b 40 1b 56 01 30 31 32 0d 0a 30 31 32 0d 0a

## Set the print alignment

Command Name	Set the print alignment (left, center, right)
Command Code	ASCII : ESC a n Decimal : 27 97 n Hexadecimal : 1B 61 n
Functional description	To align all the data in a line, the value of n meaning is as follows: n mode 0, 48 left 1, 49 middle 2, 50 right
Parameter range	$0 \leq n \leq 2$ 或 $48 \leq n \leq 50$
default	n = 0
Support model	All
attention	When the ESC @, printer after reset, power outages, the setting of this directive

Use 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
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## Set the Chinese character pattern

Command Name	Set the Chinese character pattern
Command Code	ASCII : FS & Decimal : 28 38 Hexadecimal : 1C 26
Functional description	Select Chinese pattern
Parameter range	Not
default	Not
Support model	All
attention	<p>Choosing model of Chinese characters, the printer handle all Chinese characters code, every time two bytes.</p> <p>In the first byte, and the second byte order processing code of Chinese characters.</p>
Use 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

## Cancel the Chinese character pattern

Command Name	Cancel the Chinese character pattern
Command Code	ASCII : FS . Decimal : 28 46 Hexadecimal : 1C 2E
Functional description	Cancel the Chinese character pattern
Parameter range	Not
default	Not
Support model	All
attention	Not choosing model of Chinese characters, all characters are as ASCII code, a character at a time processing.

Use example	Not
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## Choose or cancel the user custom character set

Command Name	Choose or cancel the user custom character set
Command Code	ASCII : ESC % n Decimal : 27 37 n Hexadecimal : 1B 25 n
Functional description	Choose or cancel the user custom character set When n the least significant bit is 0, cancel the user-defined character set. When n the least significant bit is 1, select user-defined character set.
Parameter	$0 \leq n \leq 255$
default	0
Support model	All
attention	When cancel the user-defined character set, automatically choose the internal character set.
Use example	Not



## Define the user custom character set

Command Name	Define the user custom character set
Command Code	ASCII : ESC & y c1 c2 [x1 d1 ... d (yx1)] ... [xk d1 ... d(y x k)] Decimal : 27 38 y c1 c2 [x1 d1 ... d(yx1)] ...[xk d1 ... d(yxk)] Hexadecimal : 1B 26 y c1 c2 [x1 d1...d(y x1)]...[xk d1...d(yxk)]
Functional description	Define the user custom characters. Y bytes specifies the vertical direction. C1 specified starting character encoding,C2 end of the specified character encoding. Xk specified horizontal points.
Parameter range	The range of x, y and the corresponding internal fonts If choose the 6 * 12 font, y = 2 , 0 ≤ x ≤ 6 If choose the 12*24 font , y= 3 , 0 ≤ x ≤ 12 32 ≤ c1 ≤ c2 ≤ 126 0 ≤ d1 ... d(y*xk) ≤ 255
default	Not
Support model	All
attention	Can define the scope of the character encoding: from < > 20 H to < 7 > e H ASCII (95 characters). Can define multiple continuous character encoding of the characters. When only need one character, make c1 = c2. D is point data of the characters. Point pattern is horizontal direction from the start on the left. On the right side of the remaining points for blank. Define user custom character data is (y * x) bytes.

Set to print the corresponding to 1 or not print points corresponding to 0.

The command for each font definition different user-defined character pattern. Use the ESC! Set the font.

The user-defined character and downlink bitmap is defined at the same time. When the command is executed, the bitmap is cleared.

In the following situations user-defined character is clear:

Perform ESC @.

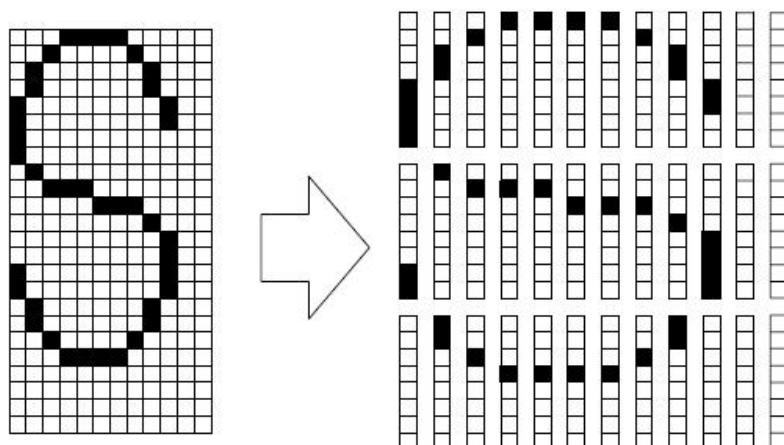
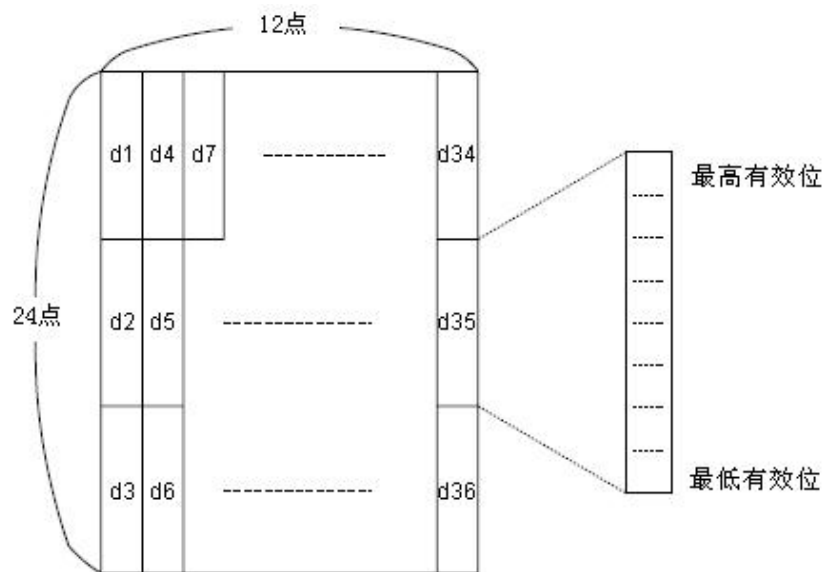
Perform GS \*.

Perform ESC ?

Reset the printer or shut off the power.

illustration :

When set the 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 . . . .

①y = 2

1B 40

1b 26 02 20 20 06 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

Use example ②y = 3

1B 40

1b 26 03 20 20 06 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 the user-defined character

Command Name	Cancel the user-defined character
Command Code	ASCII : ESC ? n Decimal : 27 63 n Hexadecimal : 1B 3F n
Functional description	Cancel code n specified by the user custom characters
Parameter range	$32 \leq n \leq 126$
default	not
Support model	All
attention	<p>The command to terminate for character encoding defined style, character encoding specified by n. After the user-defined character was cancelled, to internal character pattern print accordingly.</p> <p>In ESC! Choose the font, the command to remove the definition for a given coding style.If a user-defined character is not defined, the printer to ignore this command.</p>
Use example	not

## Choose international character sets

Command Name	Choose international character sets
Command	ASCII : ESC R n
Code	Decimal : 27 82 n Hexadecimal : 1B 52 n

Functional description	According to the following table to choose n the value of the international character sets:
	n            Character sets
	0            USA
	1            France
	2            Germany
	3            England
	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	
15           Chinese	
Parameter range	$0 \leq n \leq 15$
default	0
Support model	All
attention	
Use 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 the character code page

Command Name	Select the character code page
--------------	--------------------------------

Command code	ASCII : ESC t n Decimal : 27 116 n Hexadecimal : 1B 74 n
Functional description	Select from n character code pages N Code pages 0 CP437 [USA , the European standard]

	1	KataKana [katakana]
	2	CP850 [multi-language]
	3	CP860 [portugal]
	4	CP863 [Canada - French]
	5	CP865 [Nor-Europe]
	6	WCP1251 [Slavic]
	7	CP866 Slavic 2
	8	MIK[Slavic/Bulgaria]
	9	CP755 [Eastern Europe, Latvia 2]
	10	[Iran, Persia ]
	11	reserve
	12	reserve
	13	reserve
	14	reserve
	15	CP862 [Hebrew]
	16	WCP1252 [Latin 1]
	17	WCP1253 [Greece]
	18	CP852 [Latin 2]
	19	CP858 [Multiple language Latin 1 + o ]
	20	Iran II[Farsi]
	21	Latvia
	22	CP864 [Arabic]
	23	ISO-8859-1 [Western Europe]
	24	CP737 [Greece]
	25	WCP1257 [the Baltic sea]
	26	Thai
	27	CP720[Arabic]
	28	CP855
	29	CP857[Turkish]
	30	WCP1250[middle 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[the Baltic

	sea] 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	$0 \leq n \leq 255$
default	0
Support model	All
attention	
Use 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

## 2.3 Graphics printed instructions



## Graphics vertical modulus according to fill

Command Name	Graphics vertical modulus according to fill																
Command Code	ASCII : ESC * m HI Hh [d]k Decimal : 27 42 m HI Hh [d]k Hexadecimal : 1B 2A m HI Hh [d]k																
Functional description	Print the longitudinal modulus image data, the parameter meaning is as follows: M for spot diagram format: <table data-bbox="478 582 1197 739"> <thead> <tr> <th>m</th> <th>Mode</th> <th>Horizontal Scale</th> <th>Vertical Scale</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>8 single density</td> <td>×2</td> <td>×3</td> </tr> <tr> <td>1</td> <td>8 double density</td> <td>×1</td> <td>×3</td> </tr> <tr> <td>32</td> <td>24 single density</td> <td>×2</td> <td>×1</td> </tr> </tbody> </table>	m	Mode	Horizontal Scale	Vertical Scale	0	8 single density	×2	×3	1	8 double density	×1	×3	32	24 single density	×2	×1
m	Mode	Horizontal Scale	Vertical Scale														
0	8 single density	×2	×3														
1	8 double density	×1	×3														
32	24 single density	×2	×1														

	<p>33 24 double density ×1 ×1</p> <p>HI, Hh for horizontal points (HI + 256 x Hh)</p> <p>[d] k as figure data points</p> <p>K chart data bytes used to indicate a point, do not participate in transmission</p>
<p>Parameter range</p>	<p>XX58 :</p> <p>m = 0、1、32、33</p> <p><math>1 \leq HI + Hh \times 256 \leq 384</math></p> <p><math>0 \leq d \leq 255</math></p> <p>k = HI + Hh × 256 (当 m = 0、1 )</p> <p>k = ( HI + Hh × 256 ) × 3 (当 m = 32、33 )</p> <p>XX80 :</p> <p>m = 0、1、32、33</p> <p><math>1 \leq HI + Hh \times 256 \leq 576</math></p> <p><math>0 \leq d \leq 255</math></p> <p>k = HI + Hh × 256 (当 m = 0、1 )</p> <p>k = ( HI + Hh × 256 ) × 3 (当 m = 32、33 )</p>
<p>default</p>	<p>not</p>
<p>Support model</p>	<p>All</p>
<p>attention</p>	<p>[d] k bit is 1 the said that point to print accordingly, the corresponding bit is 0, the said that point not print at all</p> <p>Image horizontal part is out of print area will be ignored</p> <p>Point figure data and print effect relationship is as follows:</p> <div style="text-align: center;"> <p style="display: flex; justify-content: space-around;"> <span>8点方式</span> <span>24点方式</span> </p> <p style="display: flex; justify-content: space-around;"> <span>点图数据 (位图)</span> <span>点图数据 (位图)</span> </p> </div> <p>This instruction is only fill print cache, image printing should start only after receive the printed instructions, image printing finished printing the cache is cleared If need to print the image height is bigger, can is first broken down into several height of 8 (m = 0, 1) or 24 (m = 32, 33) point image print respectively</p> <p>After filling graphic data, can continue to fill the other information, so that the graphics are printed together with other information</p> <p>After filling spot diagram, generally use the ESC J (n = 24) instruction for printing, also can use LF instructions for printing, but LF instructions can</p>

	cause feed operation (by line spacing in the paper), makes the multi-line image discontinuity, can set the line spacing is 0, is not too much into the paper. (stylus printer will start migration, if there is offline, please send the data continuously)
Use example	1B 40 1b 2a 00 0C 00 FF FF FF FF FF FF FF FF FF FF 1B 33 00 0A

## Image level take modulus according to print

Command Name	Image level take modulus according to print																				
Command 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																				
Functional description	Print transverse modulus image data, the parameter meaning is as follows: M for bitmap way: <table style="margin-left: 40px;"> <thead> <tr> <th>m</th> <th>mode</th> <th>Horizontal Scale</th> <th>Vertical Scale</th> </tr> </thead> <tbody> <tr> <td>0,48</td> <td>normal</td> <td>× 1</td> <td>× 1</td> </tr> <tr> <td>1,49</td> <td>double width</td> <td>× 2</td> <td>× 1</td> </tr> <tr> <td>2,50</td> <td>double high</td> <td>× 1</td> <td>× 2</td> </tr> <tr> <td>3,51</td> <td>double width double high</td> <td>× 2</td> <td>× 2</td> </tr> </tbody> </table> XL, xH for horizontal bytes (xL + xH x 256) YL, yH for vertical direction points (yL + yH x 256) [d] k as figure data points K for point figure data bytes, k is used to signal, no transport	m	mode	Horizontal Scale	Vertical Scale	0,48	normal	× 1	× 1	1,49	double width	× 2	× 1	2,50	double high	× 1	× 2	3,51	double width double high	× 2	× 2
m	mode	Horizontal Scale	Vertical Scale																		
0,48	normal	× 1	× 1																		
1,49	double width	× 2	× 1																		
2,50	double high	× 1	× 2																		
3,51	double width double high	× 2	× 2																		
Parameter range	XX58 : $0 \leq m \leq 3 ; 48 \leq m \leq 51$ $1 \leq xL + xH \times 256 \leq 48$ $0 \leq yL \leq 255 , 0 \leq yH \leq 255$ $0 \leq d \leq 255$ $k = (Hl + Hh \times 256) \times (yL + yH \times 256)$ XX80 : $0 \leq m \leq 3 ; 48 \leq m \leq 51$ $1 \leq xL + xH \times 256 \leq 72$ $0 \leq yL \leq 255 , 0 \leq yH \leq 255$ $0 \leq d \leq 255$ $k = (Hl + Hh \times 256) \times (yL + yH \times 256)$																				
default	not																				
Support model	All																				

**attention**

[d] k bit is 1 the said that point to print accordingly, the corresponding bit is 0, the said that point not print at all

	<p>This instruction execution according to the image size into the paper, From the ESC 2, ESC 3 line spacing is set</p> <p>After the instruction execution, print coordinates are reset to the left margin position and image content is empty</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>d1</td> <td>d2</td> <td>.....</td> <td>dx</td> </tr> <tr> <td>d(x+1)</td> <td>d(x+2)</td> <td>.....</td> <td>d(x+2)</td> </tr> <tr> <td> </td> <td> </td> <td>.....</td> <td> </td> </tr> <tr> <td>.....</td> <td>d(k-2)</td> <td>d(k-1)</td> <td>dk</td> </tr> </table> <p style="text-align: center;">MSB   LSB   MSB   LSB   MSB   LSB   MSB   LSB</p> <p>This command with a printing function, data transfer and print, don't need to use the print command</p>	d1	d2	.....	dx	d(x+1)	d(x+2)	.....	d(x+2)			.....		.....	d(k-2)	d(k-1)	dk
d1	d2	.....	dx														
d(x+1)	d(x+2)	.....	d(x+2)														
		.....															
.....	d(k-2)	d(k-1)	dk														
Use example	<pre>1B 40 1d 76 30 00 03 00 09 00 FF</pre>																

## Define the bitmap

Command Name	Define the bitmap
Command Code	<p>ASCII : GS * x y d1...d(x*y*8)</p> <p>Decimal : 29 42 x y d1 ...d(x*y*8)</p> <p>Hexadecimal : 1D 2A x y d1...d(x*y*8)</p>
Functional description	<p>Use x and y under the specified points to define the bitmap.</p> <p>x Specify the horizontal points for 8 * x.</p> <p>y Specifies the vertical direction points for 8 * y.</p>
Parameter range	<p><math>1 \leq x \leq 255</math></p> <p><math>1 \leq y \leq 48</math></p> <p><math>x*y \leq 1536</math></p> <p><math>0 \leq d \leq 255</math></p>
default	Not
Support model	All
attention	<p>If x * y is beyond the specified scope, the command is banned.</p> <p>D said the bitmap data. Data (d) specify print is 1, not print a 0.</p> <p>In the following situations under the clear the bitmap definition:</p> <p>Do ESC @.</p> <p>Do ESC &amp;.</p> <p>Reset the printer or shut off the power.</p> <p>Under the bitmap and the relationship between the print data as shown in the figure below:</p>

Use example	<pre> 1B 40 1D 2A 03 03 FF 1D 2F 00                     </pre>

### Printed under the bitmap

Command Name	Printed under the bitmap										
Command Code	ASCII : GS / m Decimal : 29 47 m Hexadecimal : 1D 2F m										
Functional description	M under the specified pattern to print the bitmap: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>m</th> <th>Mode</th> </tr> </thead> <tbody> <tr> <td>0, 48</td> <td>Common</td> </tr> <tr> <td>1, 49</td> <td>Double width</td> </tr> <tr> <td>2, 50</td> <td>Double high</td> </tr> <tr> <td>3, 51</td> <td>Double width, double high</td> </tr> </tbody> </table>	m	Mode	0, 48	Common	1, 49	Double width	2, 50	Double high	3, 51	Double width, double high
m	Mode										
0, 48	Common										
1, 49	Double width										
2, 50	Double high										
3, 51	Double width, double high										
Parameter range	$0 \leq m \leq 3$ $48 \leq m \leq 51$										
default	Not										

Support model	All
attention	<p>If the bitmap data is not defined, this command is ignored.</p> <p>Standard mode, the command is only valid when printing there is no data in the buffer.</p> <p>Print mode (bold, overlapping, underline, character size or the white printing) under the command is invalid, unless it is reverse print mode.</p> <p>If it will print over the downlink bitmap print area, is beyond the data does not print.</p>
Use example	Not

## Define the NV bitmap

Command Name	Define the NV bitmap
Command Code	<p>ASCII : FS q n [xL xH yL yH d1...dk]1...[xL xH yL yH d1...dk]n</p> <p>Decimal : 28 113 n [xL xH yL yH d1...dk]1...[xL xH yL yH d1...dk]n</p> <p>Hexadecimal : 1C 71 n [xL xH yL yH d1...dk]1...[xL xH yL yH d1...dk]n</p>
Functional description	<p>NV bitmaps are defined with the particular value of n.</p> <p>n Delegate the number of the NV defined bitmap.</p> <p>xL, xH for defining the NV bitmap specified horizontal points<math>(xL+xH*256)*8</math>.</p> <p>yL, yH for defining the NV bitmap specified vertical points <math>(yL+yH*256)*8</math>.</p>
Parameter range	<p><math>1 \leq n \leq 255</math></p> <p><math>0 \leq xL \leq 255</math></p> <p><math>0 \leq xH \leq 3</math></p> <p><math>(1 \leq (xL+xH*256) \leq 1023)</math></p> <p><math>0 \leq yL \leq 255</math></p> <p><math>0 \leq yH \leq 1</math></p> <p><math>(1 \leq (yL+yH*256) \leq 288)</math></p> <p><math>0 \leq d \leq 255</math></p> <p><math>k = (xL+xH*256)*(yL+yH*256)*8</math></p> <p>And define data area = 64 k bytes</p>
default	Not
Support model	All

attention

Frequently write command it might damage the NV memory. Therefore, it is suggested that to NV memory perform no more than 10 times a day write operations.

In the process of put an image in NV memory, printers, perform a hardware reset operation. So the user custom characters, downlink bitmap should be after complete the command definition. Printers to clear and receive buffer, and reset to available at the time of turning on the power supply mode. (does not support hardware reset interface)



In the process of put an image in NV memory, cancel all print the command has been defined in the command NV bitmap.

Since this command during processing to complete hardware reset, cannot perform mechanical operation (including when initializing the print head cover open position with feed button into paper, etc.).

In this command during the processing, when NV memory write data to the users of the printer is busy and stop receiving data. Therefore forbidden during the execution of this command transmission data, including real-time command.

NV bitmap is a definition in the nonvolatile memory bitmap. FS are defined with the FS q p to print.

Under the standard mode, the command is valid only in the beginning of a line processing.

This command 7 bytes < FS yH > command is valid after normal processing.

When the amount of data than the xL, xH, yL, yH, defined the scope of the left capacity outside the scope of printer defined in xL, xH, yL, yH defined scope.

In the first set of bitmap, when the xL, xH, yL, any parameter in yH is beyond the definition of scope, this command is forbidden.

In the first group of a group of bitmap, when the printer in xL, xH, yL, yH is beyond the scope definition, is to stop processing the command, and began to write NV image. At this time, there has been no defined NV bitmap banned (undefined,) but a previously defined any NV bitmap is still valid.

D said to define data. In data (d), specify a to print a one point and a 0 bit specify a print of the point.

This command will n defined as the number of NV bitmap. 01 h began to rise in order number from the bitmap. So the first data set [xL xH yL yH d1... dk] is NV bitmap 01 h, the final data set [xL xH yL yH d1... dk] n is NV bitmap. Total and FS p command set NV bitmap number consistent.

The definition of a NV bitmap data by [xL xH yL yH d1... dk]. Therefore, when only one NV bitmap n = 1, printer only deals with data set [xL xH yL yH d1... dk] at a time. Printers use NV memory ([data: (256) xL + xH \* (yL + yH \* 256) \* 8] + [header: 4]) bytes.

This printer is defined in the area of 192 k bytes (maximum). This command can define several bitmap, but cannot be defined according to the total capacity [bitmap data + head] more than 192 k bytes of the bitmap.

Even set the ASB, printers don't transmit ASB during processing the command or execution state detection.

Once defined a NV bitmap, it cannot be implemented ESC @, reset, power cuts are deleted.

The definition of the command to perform only NV bitmap, does not

	<p>perform print. NV bitmap print by FS p command execution.          Illustration: when xL = 64, xH = 0, yL = 96, yH = 0</p> <p style="text-align: center;"><math>(xL + xH \times 256) \times 8 \text{ 点} = 512 \text{ 点}</math></p> <p>Diagram labels: d1, d2, d3, d96, d49057, d49152, 最高有效位, 最低有效位, 700 点</p>
<p>Use example</p>	<pre> 1B 40 1C 71 01 03 00 03 00 FF         </pre>

	FF FF 1C 70 01 00
--	----------------------

## Print NV bitmap

Command Name	Print NV bitmap										
Command Code	ASCII : FS p n m Decimal : 28 112 n m Hexadecimal : 1C 70 n m										
Functional description	<p>With n m specified print NV pattern bitmap</p> <table border="1"> <thead> <tr> <th>n</th> <th>Mode</th> </tr> </thead> <tbody> <tr> <td>0, 48</td> <td>common</td> </tr> <tr> <td>1, 49</td> <td>Double width</td> </tr> <tr> <td>2, 50</td> <td>Double high</td> </tr> <tr> <td>3, 51</td> <td>Double width/double high</td> </tr> </tbody> </table>	n	Mode	0, 48	common	1, 49	Double width	2, 50	Double high	3, 51	Double width/double high
n	Mode										
0, 48	common										
1, 49	Double width										
2, 50	Double high										
3, 51	Double width/double high										
Parameter range	$0 \leq m \leq 3$ $48 \leq m \leq 51$ $1 \leq n \leq 255$										
default	Not										
Support model	All										
attention	<p>N is the number of NV bitmap (FS q command definition). M. specified bitmap mode.</p> <p>NV bitmap is a definition in the nonvolatile memory bitmap.FS are defined with the FS q p to print</p> <p>When there is no specified NV bitmap, the command is invalid.</p> <p>In standard mode, only when there is no data in the print buffer, this command is valid.</p> <p>this command is not affected by print mode (in bold print, overlapping, underline, character size, reverse printing or character 90 °), and rotated inverted except the print mode.</p> <p>if you want to print more than one line of the downlink bitmap, is beyond the data does not print.</p> <p>In ordinary and times as wide as mode, the command into the paper n points (n NV bitmap level), under the mode of high times and four times the size (the command into the paper 2 n, n for NV bitmap height), and ESC 2 or 3 set the line spacing of ESC has nothing to do.</p> <p>print the bitmap after this command to set the print position at the beginning of a line, and the subsequent data according to the general data processing</p>										
Use example	Not										

## 2.4 TAB order

### Horizontal TAB

Command Name	Horizontal TAB
Command Code	ASCII : HT Decimal : 9 Hexadecimal : 09
Functional description	Move the print position to the next TAB
Parameter range	Not
default	Not
Support model	All
attention	TAB position are set in the ESC D If the TAB position is not set no horizontal TAB position (the default), the instruction will be treated as LF instructions If the TAB position beyond the print area, coordinates will be shifted to the next line of the starting position of the (depending on the data bank is full, and printing Newline)
Use example	Not

### Settings TAB position

Command Name	Settings TAB position
Command Code	ASCII : ESC D [d]k NUL Decimal : 27 68 [d]k 0 Hexadecimal : 1B 44 [d]k 00
Functional description	Settings TAB position, parameter meaning is as follows: D1...Dk: horizontal TAB position, to 8 PM, a NULL terminator
Parameter range	XX58 : $1 \leq d \leq 46$ ( $d_1 < d_2 < \dots < d_k$ , $1 \leq k \leq 16$ ) XX80 : $1 \leq d \leq 70$ ( $d_1 < d_2 < \dots < d_k$ , $1 \leq k \leq 16$ )
default	[d]k = 0 No horizontal TAB position (the default)
Support model	All
attention	TAB position signal is as follows:

	<div style="text-align: center;"> <p>设置制表位置d1和d2</p> </div> <p>Maximum 16 TAB position setting  Using this command will cancel the previous TAB position Settings  K is used to signal, no transport  Transmission [d] k when you meet the NULL as the end  If the dk is less than or equal to dk - 1, as the end, the remaining data as a common data processing  TAB position can be made of HT switch  After the change the left margin, TAB position change at the same time  When the ESC @, printer after reset, power outages, the setting of this directive</p>
Use example	1B 44 04 06 08 0A 00 09 30 09 31 09 32 09 33 0D 0A

## 2.5 One dimensional barcode printing instructions


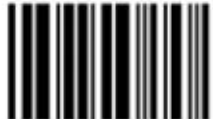
### Set the barcode readable characters (HRI) print position

Command Name	Set the barcode readable characters (HRI) print position
Command Code	ASCII : GS H n Decimal : 29 72 n Hexadecimal : 1D 48 n
Functional description	Set the barcode readable characters (HRI) print position, n parameters meaning is as follows: n the print position 0 , 48 no print 1 , 49 above the barcode 2 , 50 below the barcode 3 , 51 above and below the barcode
Parameter range	$0 \leq n \leq 3$ 或 $48 \leq n \leq 51$
default	n = 0



Support model	All
attention	When the ESC @, printer after reset, power outages, the setting of this

	directive
Use example	Not

## Set a dimensional barcode height

Command Name	Set a dimensional barcode height
Command Code	ASCII : GS h n Decimal : 29 104 n Hexadecimal : 1D 68 n
Functional description	Set the height of the bar code to n points, the parameter n meaning is as follows:  高度为 50  高度为 100
Parameter range	$1 \leq n \leq 255$
default	n = 64
Support model	All
attention	When the ESC @, printer after reset, power outages, the setting of this directive
Use example	Not

## Set a dimensional barcode width

Command Name	Set a dimensional barcode width
Command Code	ASCII : GS w n Decimal : 29 119 n Hexadecimal : 1D 77 n
Functional description	Set the barcode unit to n points, parameter n meaning is as follows:  宽度为 3  宽度为 4

Parameter range	$1 \leq n \leq 6$
--------------------	-------------------



default	n = 2
Support model	All
attention	When the ESC @, printer after reset, power outages, the setting of this directive
Use example	Not

## one-dimensional bar code Printing

Command Name						
Command Code	(A) ASCII : GS k m [d]k NUL Decimal : 29 107 m [d]k NUL Hexadecimal : 1D 6B m [d]k NUL (B) ASCII : GS k m n [d]k Decimal : 29 107 m n [d]k Hexadecimal : 1D 6B m n [d]k					
Functional description	Print a dimensional barcode, the parameters meaning is as follows: m is coding scheme N for encoding data length, (B) use only, the difference between the (A) and (B) the instruction is the end of the data segment with A NULL character (A), and (B) indicates the length of the data [d]k is code data K for the length of the bar code data, is used to signal and don't have to transfer The relationship between the parameters shown in the table below: (Instructions A)					
			Bar code data (SP said Spaces)			
	m	Code system	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 ,	0~9	48 ≤ d ≤ 57 [ 当 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	changeable	1 ≤ k	0~9 , A~Z , SP , \$ , % , * , + , - , . , /	48 ≤ d ≤ 57 , 65 ≤ d ≤ 90 , d = 32 , 36 , 37 ,

						42 , 43 , 45 , 46 , 47
5	ITF (Interleaved 2 of 5)	changeable	$2 \leq k \leq 255$ ( even number )	0~9		$48 \leq d \leq 57$
6	CODABAR (NW-7)	changeable	$1 \leq k$	0~9 , A~D , a~d \$ , + , - , . , / , :		$48 \leq d \leq 57$ , $65 \leq d \leq 68$ , $97 \leq d \leq 100$ , $d = 36 , 43 , 45$ , 46 , 47 , 58 ( $65 \leq d1 \leq 68$ , $65 \leq dk \leq 68$ , $97 \leq d1 \leq 100$ , $97 \leq dk \leq 100$ )
(Instructions B)						
m	Code systems	Bar code data (SP said Spaces)				
		Data length	n	character set	Data ( d )	
65	UPC-A	Fixed	$n = 11 , 12$	0~9		$48 \leq d \leq 57$
66	UPC-E	Fixed	$6 \leq n \leq 8$ , $n = 11 , 12$	0~9		$48 \leq d \leq 57$ [ 当 $n = 7, 8, 11, 12$ , $d1 = 48$ ]
67	JAN13 (EAN13)	Fixed	$n = 12 , 13$	0~9		$48 \leq d \leq 57$
68	JAN8 (EAN8)	Fixed	$n = 7 , 8$	0~9		$48 \leq d \leq 57$
69	CODE39	changeable	$1 \leq n$	0~9 , A~Z SP , \$ , % , * , + , - , . , /		$48 \leq d \leq 57$ , $65 \leq d \leq 90$ , $d = 32 , 36 , 37$ , 42 , 43 , 45 , 46 , 47
70	ITF (Interleaved 2 of 5)	changeable	$2 \leq n \leq 255$ (even number )	0~9		$48 \leq d \leq 57$
71	CODABAR (NW-7)	changeable	$1 \leq n$	0~9 , A~D , a~d \$ , + , - , . , / , :		$48 \leq d \leq 57$ , $65 \leq d \leq 68$ , $97 \leq d \leq 100$ ,

						d = 36 ,43 ,45 , 46 , 47 , 58 (65 ≤ d1 ≤ 68 , 65 ≤ dk ≤ 68 , 97 ≤ d1 ≤ 100 , 97 ≤ dk ≤ 100)
	72	CODE9 3	cha nge able	1 ≤ n ≤ 255	00H~7FH	0 ≤ d ≤ 127
	73	CODE1 28	cha nge able	1 ≤ n ≤ 255	00H~7FH C1H~C4H(FN C)	0 ≤ d ≤ 127 d = 193 , 194,195,196
	74	UCC/EA N128	cha nge able	1 ≤ n ≤ 255	00H~7FH C1H~C4H(FN C)	0 ≤ d ≤ 127 d = 193 , 194,195,196
Parameter range	(A) 0 ≤ m ≤ 6 (B) 65 ≤ m ≤ 74					
default	not					
Support model	All					
attention	<p>If the area beyond can print bar code width, the printer does not perform the barcode printing, This instruction execution according to the need to feed, not affected by the ESC 2, 3 ESC line spacing also does not affect the line spacing Settings.</p> <p>This instruction is not affected by ESC!Character style Settings After the instruction execution, print position back to the starting location M parameter 0 ~ 6 (A) and (B) 65 ~ 71 to choose the same coding system, print effect is the same. M parameter 0 ~ 6 (A), bar code data ended with NULL. M parameters (B) 65 ~ 74, the bar code data to data length n. K is used to signal, do not need to transfer Print UPCA (m = 0 or 65), the need to pay attention to: 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 Print UPCE (m = 1 or 66), the need to pay attention to: 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</p>					

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;  
 To transmit data and print the data transformation relationship 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, 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), the need to 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), the need to 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), the need to 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), the need to 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), the need to 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 CODE93 (m = 72), the need to pay attention to:  
 Starting character and terminators automatically inserted  
 Two check code automatic calculation and insert  
 When set barcode readable characters (HRI) print, without any said start/end HRI characters  
 When set (HRI) print barcode readable characters, control characters will be replaced with a space

Print CODE128 (m = 73), the need to 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 barcode readable characters, control characters and FNC1 ~ FNC4 will use Spaces instead

Print EAN128 (m = 74), the need to pay attention to the basic structure is as follows:

The starting character set	FNC1	AI	data division	check bit A	check bit B	end mark
Auto Punch		( d1...dk )			Auto Punch	

Connection structure is as follows:

The starting character set	FNC1	AI	data division	check bit A	FNC1	AI	data division	check bit A	check bit B	end mark
Auto Punch		( d1...dk )							Auto Punch	

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

User input data in AI don't need to use "(" ")" instructions, coding system automatically inserts, no side could go wrong, such as: 18 "019501234567890 \*\*", 01 is AI , the following is wrong : GS k 74 18 "(01)9501234567890\*\*"

	<p>When using connection structure, the middle need to insert FNC1 (C1H Decimal = 193) input example is as follows:  GS k 74 18 "019501234567890*" 193 "029501234567890*"  When set (HRI) print barcode readable characters, control characters will replace with a space, and FNC1 ~ FNC4 will be removed</p>
Use example	<pre> 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 </pre>

## 2.6 Status inquiry instruction

### Transfer state

Command Name	Transfer state	
Command Code	ASCII : GS r n Decimal : 29 114 n Hexadecimal : 1D 72 n	
Functional description	Transmitted by n specified by the state, as shown below:	
	n	状态
	1.49	传送纸传感器状态
Parameter range	n = 1, 49	
default	Not	
Support model	All	

attention

When using a serial interface:

If set DTR/DSR control, the printer after confirm the host receiving data in place (the DSR signal for SPACE), only one byte.If the host computer not ready to receive send data (the DSR signal for MARK), printers, wait until the host is ready.

If set XON/XOFF control, printer just send a byte, and does not confirm the DSR signal state.

	<p>When data generated in the print buffer, execute the command. So between receives the commands and transmit state, there may be a time interval, it depends on the state of the receive buffer.</p> <p>Reply with GS a state of activated automatically when the ASB, sent by GS r state and ASB state must be separate.</p> <p>The state of the transmission type as shown below :</p> <p>Printing paper sensor (n = 1, 49):</p>					
		po st	off/on	Hexadec imal	Decimal	ASB state
		0,1	-	-	-	No meaning
		2,3	off	00	0	Paper sensor: printing pa
			on	(0C)	(12)	Paper sensor missing pap
		4	off	00	0	Unused, fixed for off
		5,6	-	-	-	undefined
	7	off	00	0	Unused, fixed for off	
	<p>2 and 3: printing paper with all sensors detect the printing paper, printer into offline, and the command is not executed. So a 2 and 3 don't transfer paper out state</p>					
Use example	not					

## Real-time transmission state

Command Name	Real-time transmission state
Command Code	<p>ASCII : DLE EOT n</p> <p>Decimal : 16 4 n</p> <p>Hexadecimal : 10 04 n</p>
Functional description	<p>According to the following parameters, real-time transmission printer status, the parameter n is used to specify the printer to be transmitted</p> <p>Status :</p> <p>n = 1 : Transfer printer status</p> <p>n = 2 : Transfer off-line status</p> <p>n = 3 : Transfer error status</p> <p>n = 4 : Transfer paper sensor</p>
Parameter range	$1 \leq n \leq 4$
default	Not
Support model	All



attention

- printer return immediately after receiving the command associated state.
- Try not to plug in, the command sequence of two or more bytes of command.
- even if the printer is ESC = (peripherals) command set to ban, the command is still valid.
- Printer send current state, every state with 1 byte data representation.
- Transfer, printer status is not confirmed whether the host when received.
- Printer, received the command executed immediately.
- the command applies only to a serial port printer. The printer in any state received the command is executed immediately.

n=1 : printer status

po st	0/ 1	Hexadecim al	decimal	Function
0	0	00	0	Fixed 0
1	1	02	2	Fixed 1
2	0	00	0	One or two of the box open (no money machine the fixed zero)
	1	04	4	Both coffers closed
3	0	00	0	online
	1	08	8	Off-line
4	1	10	16	Fixed 1
5, 6		--	--	undefined
7	0	00	00	Paper tear away
	1	80	96	Paper not to tear away

n=2 : Send offline

po st	0/ 1	Hexadecim al	decimal	Function
0	0	00	0	Fixed 0
1	1	02	2	Fixed 1
2	0	00	0	On the cover off
	1	04	4	Opening up
3	0	00	0	Not Press the paper feed button
	1	08	8	Press the paper feed button
4	1	10	16	Fixed 1
5	0	00	0	Paper in place
	1	20	32	out of paper
6	0	00	00	Without error
	1	40	64	There is an error condition
7	0	00	0	Fixed 0

	n=3 : Transmission error status				
	post	0/1	Hexadecimal	decimal	Function
	0	0	00	0	Fixed 0
	1	1	02	2	Fixed 1
	2		--	--	undefined
	3	0	00	0	Cutter has no error
		1	08	8	Cutter has error
	4	1	10	16	Fixed 1
	5	0	00	0	No unrecoverable error
		1	20	32	Have unrecoverable error
	6	0	00	00	The print head temperature and voltage is normal
		1	40	64	Beyond the scope of the print head temperature or voltage
	7	0	00	0	Fixed 0
	n=4 : Transfer paper sensor				
	post	0/1	Hexadecimal	Decimal	Function
	0	0	00	0	Fixed 0
	1	1	02	2	Fixed 1
	2,3	0	00	0	paper
		1	0C	12	Paper nearly
4	1	10	16	Fixed 1	
5,6	0	00	0	paper	
	1	60	96	Paper out	
7	0	00	0	Fixed 0	
Use example	10 04 01 10 04 02 10 04 03 10 04 04				

## 2.7 Printing the QR code

### Set the QR code module type

Command Name	Set the QR code module type
Command Code	ASCII : GS k m v r nL nH d1...dk Decimal : 29 107 97 v r nL nH d1...dk Hexadecimal: 1D 6B 61 v r nL nH d1...dk
Functional	Set the QR code module type

description	
Parameter range	pL=3, pH=0 cn=49 fn=67 $0 \leq n \leq 16$
default	n=3
Support model	all
attention	Set the QR code graphics module type to [n * n points]
Use example	not

## 2.8 Other instruction

### Initialization printer

Command Name	Initialization printer
Command Code	ASCII : ESC @ Decimal : 27 64 Hexadecimal : 1B 40
Functional description	Initialize printer the following contents: Clear print cache The parameters to restore the default values

Parameter range	Not
default	Not
Support model	All
attention	Not
Use example	Not

## Print self-test page

Command Name	Print self-test page
Command Code	ASCII : DC2 T Decimal : 18 94 Hexadecimal : 12 54
Functional description	Printer to print a test page, contains the printer on the program version, communication interface type, the code page and some other data
Parameter range	Not
default	Not
Support model	All
attention	Not
Use example	1B 40 12 54