

HS-QR73(24V)

Panel thermal printer user manual



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1 Introduction

1.1 HS-QR73

HS-QR73 is a printer with integrated panel design, which is embedded in the customer's equipment and has a good overall appearance. Low power consumption, high quality, stable performance, and the motor and thermal print head have passed numerous tests to achieve high standards. It has always been a thermal printer favored by merchants.

List of supported operating systems:

WINDOWS XP
WINDOWS 7 32/64
WINDOWS 8
WINDOWS 10
UBUNTU 12.04 32/64
UBUNTU 14.04 32/64

1.2 main feature

- 1) Panel integrated design with exquisite and beautiful appearance
- 2) Low noise, high quality printing
- 3) Support USB, serial port, parallel port and other connection methods
- 4) Support receipt paper, black mark paper, label paper printing
- 5) With automatic cutter and paper not taking function, the use is more user-friendly
- 6) The printer will be fully functional with paper, and it will be more intelligent in an unmanned environment
- 7) It has the functions of anti-paper jam and anti-paper drag, which can greatly reduce the probability of failure
- 8) Easy loading paper structure
- 9) Easy to use and maintain, easy to embed various instruments and meters
- 10) Can be embedded in self-service equipment or meters

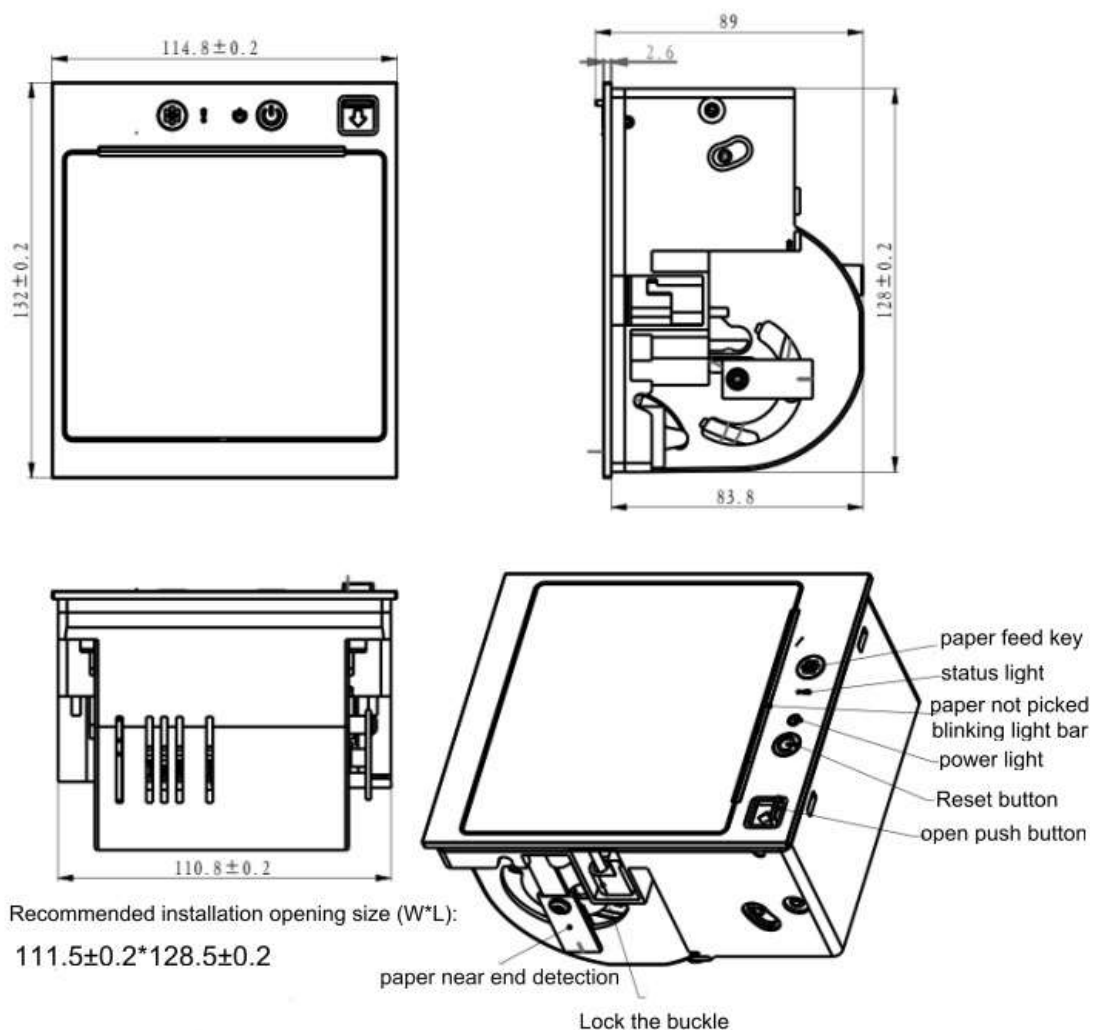
2 Performance parameters

Model		HS-QR73-MA/ HS-QR73-MB HS-QR73-MC/ HS-QR73-MD/ HS-QR73-ME
Printing	Print method	Thermal dot line printing
	Resolution	203Dpi(8dot/mm)
	Printing speed	MAX.200mm/s
	printing width	72mm
	Interface	Serial,USB, Parallel
Paper	Paper Type	Continuous paper,die-cut label,black mark paper
	Paper width	43-80mm (adjustable)
	Paper roll diameter	Max.80mm
	Paper thickness	0.053-0.09mm(receipt)/0.10-0.15mm(label)
	Paper loading	Easy paper loading
	Auto cutter	Full cut or partial cut(through command)
Reliability	TPH life	100km(25% print density)
	Cutter life	More than 1 million times
Fonts	Chinese	GBK:16x16,24x24
	Alphanumeric	ASCII:8x16,9x17,9x24,12x24
Bar code	1D	UPC-A,UPC-E,EAN8,EAN13,code39,ITF,CODEBAR,CODE128,CODE93
	2D	QR code,PDF417
Memory	RAM	64K
	Flash	4M
Power	power supply	DC 24V/2A (peak value≥6A)
	Cashbox control	DC 24/1A
Software	Command	ESC/POS (ticket), CPCL, TSPL, JPL (label)
	Driver	Windows XP、7、8、10/ Linux/MAC OS
	SDK	Windows SDK/Linux SDK/Android SDK/IOS SDK
Environment	Operating Temperature	0°C-50°C
	Operating Humidity	20% RH-85% RH
	Storage Temperature	-20°C-60°C
	Storage Humidity	5%-90% RH
Characteristics Physical	Dimensions(WxDxH)	114.8*132*86.4mm
	Installation port size	111.5*128.5mm
	Insert Depth size	≥84mm
	Color	white, black, silver

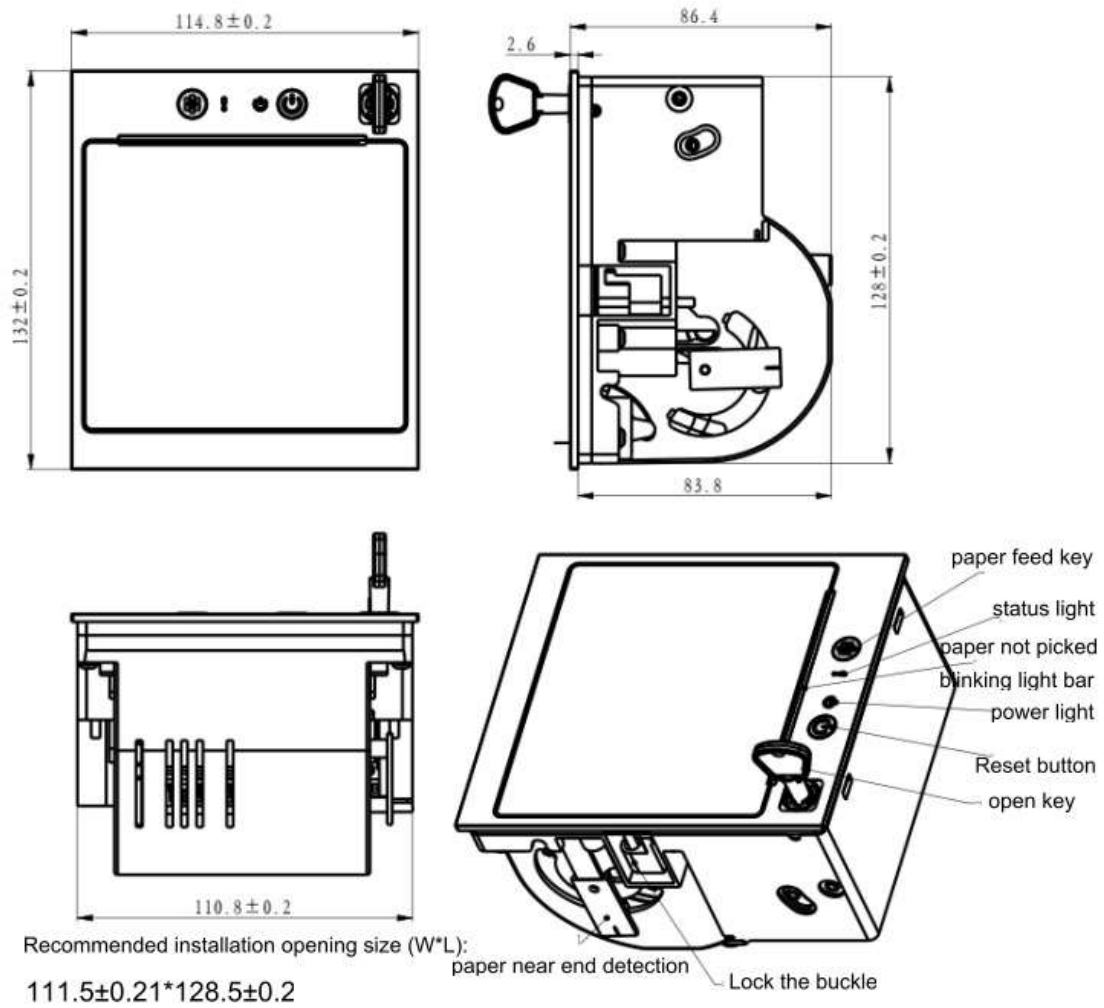
3 Dimensional drawing and pin definition

3.1 Dimensional drawing

a. HS-QR73-HA size chart (detailed explanation of the model)

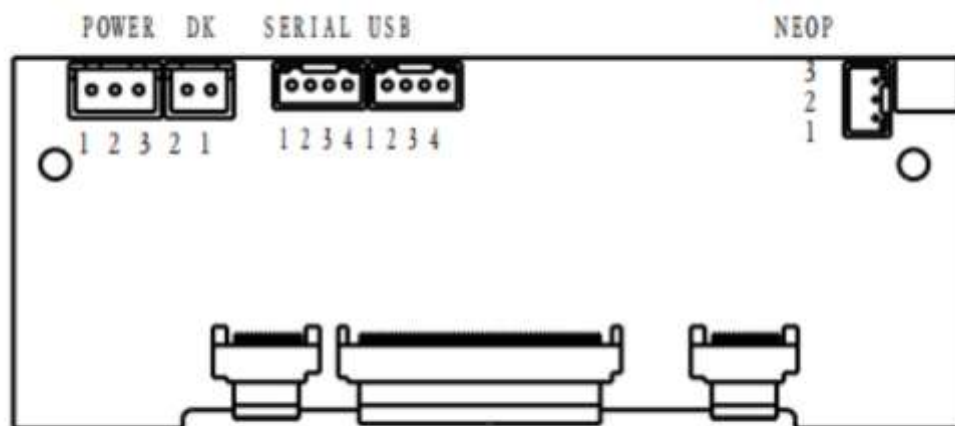


b. HS-QR73-HE dimension drawing



3.2 Pin definition

Interface indication:



Power (POWER) pin definition (XH2.54-3PIN)

Pin number	Signal name	illustrate
1	VH(DC24V 2A)	DC24V 2A positive pole
2	NC	null
3	GND	ground

Cash drawer (DK) pin definition (XH2.54-2PIN)

Pin number	Signal name	illustrate
1	VH	positive pole
2	DR	Cash drawer console

USB pin definition (PH2.0-4PIN)

Pin number	Signal name	illustrate
1	GND	ground
2	D+	data positive line
3	D-	data negative line
4	VUSB	5V positive electrode

Serial RS232/TTL (SERIAL) pin definition (PH2.0-4PIN)

Pin number	Signal name	illustrate
1	GND	ground
2	RXD	data reception
3	TXD	data sending

4	DTR	flow control
---	-----	--------------

Paper near end optocoupler (NEOP) pin definition(PH2.0-3PIN)

Pin number	Signal name	illustrate
1	GND	
2	VIN	
3	PN1	

Parallel (LPT) Interface Pin Definition

No.	Signal	Function	No.	Signal	Function
1	/STROBE	Strobe, active low	10	/ACK	Confirm, active low
2	DATA0	data bit 0	11	BUSY	busy
3	DATA1	data bit 1	12	PE	out of paper
4	DATA2	data bit 2	13	SEL	choose
5	DATA3	data bit 3	14	NC	empty feet
6	DATA4	data bit 4	15	/ERROR	error, active low
7	DATA5	data bit 5	16	/INIT	Initialization, active low
8	DATA6	data bit 6	17	NC	empty feet
9	DATA7	data bit 7	18-26	GND	ground wire

4.Basic use

4.1 Print a self-test page

Press and hold the reset button and the paper feed button at the same time for 3 seconds, and a self-test page will be printed, which reflects the basic information of the printer.

4.2 Status prompt

Power indicator (green)	Status indicator (red)	printer status
Always bright	off	normal
Always bright	flash 2 times	The printer mechanism is not connected or the temperature is too low
Always bright	flash 3 times	out of paper
Always bright	flash 4 times	cutter error
Always bright	flash 5 times	Printer mechanism overheating
Always bright	flash 6 times	Shaft not in place
Always bright	flash 7 times	Paper jam

LED light guide bar (blue) blinking

paper not removed

4.3 Eliminate cutter jams and paper jams

Method 1: Press and hold the reset button for 3 seconds to reset the cutter, and quickly remove the stuck cutter (use first)

Method 2: Reset the cutter by turning the cover opening push button or key several times, and forcefully remove the stuck cutter

Remove jammed paper: remove the jammed knife first, then open the top cover to clear the jammed paper.

4.4 Cutter test

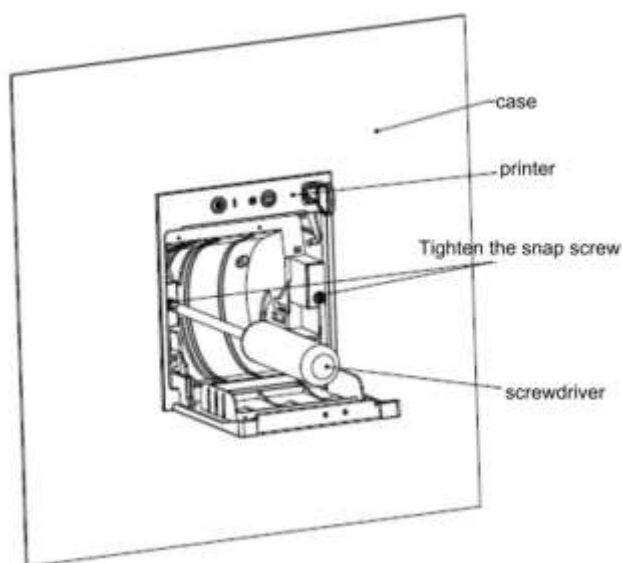
When testing the cutter, the interval between each cut is more than 3 seconds.

4.5 The working principle and troubleshooting methods of anti paper jam and anti paper drag

Paper jam and troubleshooting: When the hand or foreign object is blocked in the paper outlet and printing, the printer will be jammed, the printer will stop printing and report an error (the red light flashes 7 times, the buzzer sounds 7 intervals); If the foreign matter is removed from the paper outlet, the printer will continue to print.

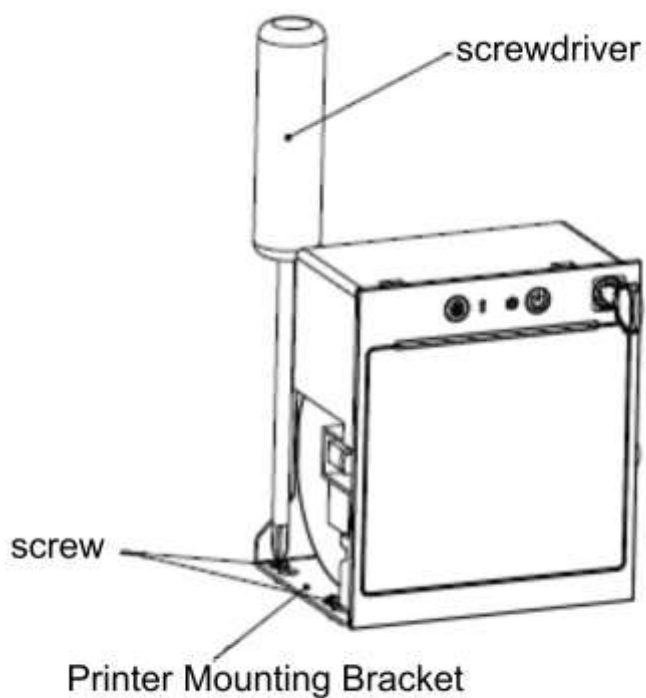
Paper-pulling and troubleshooting: When paper-pulling causes paper jam, the printer will suspend printing and report an error. At this time, you need to open the top cover to remove the jammed paper.

4.6 Printer installation



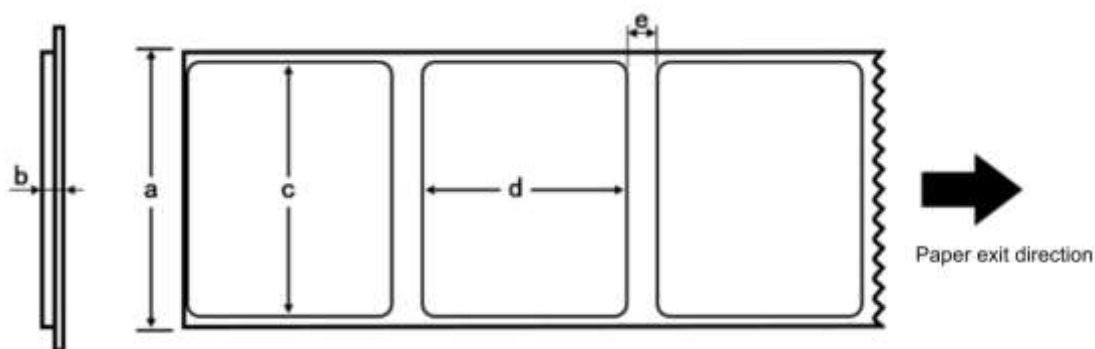
a. **Panel installation:** Insert the bottom of the printer into the opening of the device, open the upper cover of the printer, and fasten the screws on the left and right sides with a screwdriver, as shown in the figure below. Be careful not to lock the screws too tightly, which will cause the printer to deform and affect the printer function.

b. **Embedded installation:** Install and lock the printer (including the fixing bracket) inside the device



5 Label mode

5.1 Label parameter



Note: Do not scratch the print head with hard objects (such as tweezers, etc.) when cleaning the print head; in order to improve the service life of the print head, long-term printing of self-adhesive paper will have residual glue on the back of the adhesive. It is recommended to clean the print head every month. Bad, increase cleaning appropriately.

The print head should be cleaned when any of the following conditions occur:

Printing is not clear;

- Paper feed noise is loud.

code	meaning		Maximum (mm)	Minimum (mm)
a	Backing paper width		80	43
b	Label thickness		0.1	0.05
c	support label width		40mm/50mm/55mm/60mm/70mm/75mm	
d	label height	normal printing	110	30
e	Label gap		5	3
Note: It is recommended to choose a label paper roll with an inner diameter of the paper roll core of 13mm, a blue backing paper and a label gap of more than 3mm				

5.2 Set label mode and parameters

- Set to label printing mode by setting tool (Figure 5.1)
- Determine the width of the label paper roll, and insert the separator into the slot of the paper slot (the small card point of the separator is inserted into the side close to the printer); Figure 5.2); (The outer diameter of the paper roll is not more than 80mm, and the inner diameter of the paper roll core is 13mm)
- After power on, close the top cover, press and hold the paper feed button for 5 seconds, and the printer will automatically enter the high-precision learning mode.
- Due to the difference in the installation method of the printer (horizontal and vertical) and the difference in the label gap, the paper may not be cut in the middle of the gap when cutting.). (Figure 5.3)
- Press and hold the feed button and reset button at the same time to print the self-test page, and scan the QR code of the self-test page with WeChat to learn more detailed parameters of the printer.

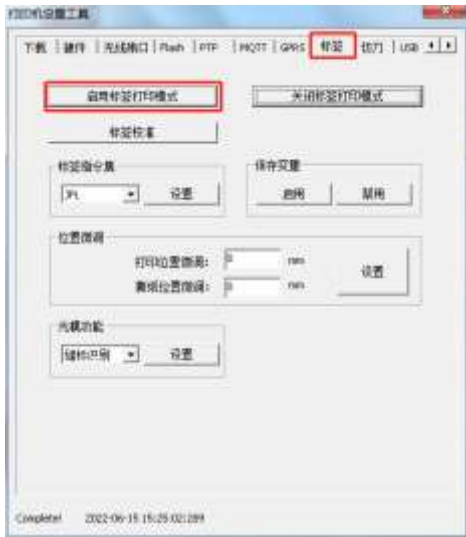


Figure5.1



Figure 5.2

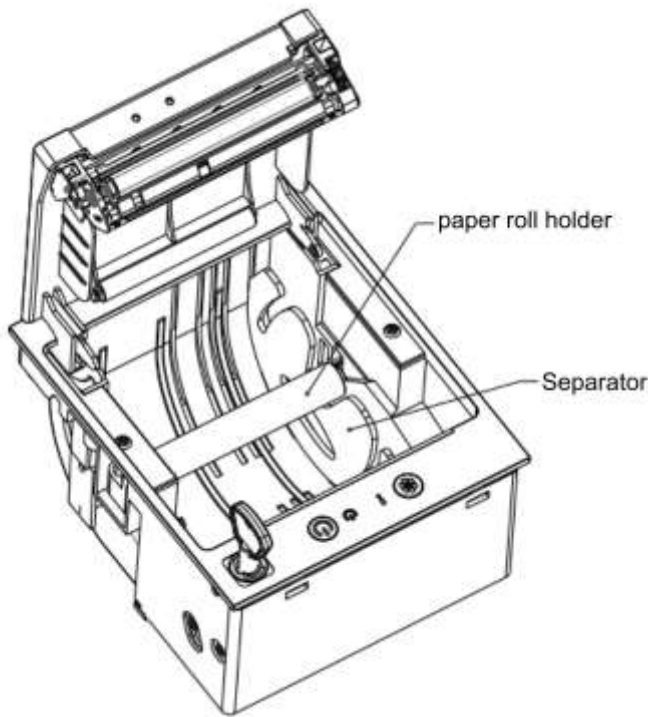


Figure 5.3

6.Command list

LF	Print and line feed	Print and feed command
CR	Enter	
ESC J	Print and feed paper n dots	
ESC d	Print and feed paper n lines	

ESC 3	Set the line spacing to n dots	Printing setting commands
ESC 2	Set the line spacing to the default value	
ESC \$	Set print position	
GS L nL nH	Set the amount of left margin	
ESC B n	Set the left margin	
ESC SP n	Set the right spacing of characters	
ESC !	Set character printing method	
ESC M n	Choose font	
GS ! n	Set character size	
GS B n	Set and cancel reverse printing	
ESC - n	Set and remove underline	
ESC V n	Set and cancel 90° rotation printin	
ESC E n	Set and cancel bold printing	
ESC G n	Set and cancel overlap printing	
ESC { n	Set and cancel upside-down printing	
ESC a	Set print alignment	
FS &	Set Chinese character mode	
FS ! n	Set Chinese character printing mode combination	
FS .	Cancel Chinese Character Mode	
FS 2	Define user-defined Chinese characters	
ESC R n	Choose an international character set	Graphic printing commands
ESC t n	Select character code page	
ESC 9 n	Toggle double-byte encoding	
ESC *	Graph vertical modulo data filling	
GS v 0	Image horizontal modulo data printing	
GS *	Define download bitmap	
GS / m	Print download bitmap	
FS q	Define NV bitmap	
FS p n m	Print NV bitmap	One-dimensional barcode printing commands
GS v 0 m	Print raster bitmap	
GS n	Print line segment in horizontal position (curve print command)	
HT	Horizontal tabulation	
ESC D	Set the horizontal tab position	QR code printing commands
GS H	Set the printing position of one-dimensional bar code readable characters (HRI)	
GS h	Set the height of one-dimensional barcode	QR code printing commands
GS w	Set the width of one-dimensional barcode	
GS k	Print one-dimensional barcode	
GS (Print QR code	QR code printing commands
GS (k pL pH cn fn n	Set the module type of QR code	
GS (k pL pH cn fn n	Set the error correction level of the QR code	

GS(k pL pH cn fn m d1...dk	Store the QR code data in the QR code buffer	
GS(k pL pH cn fn m	Print QR code	
GS(k pL pH cn fn m	Set the graphic information of the QR code	
GS r n	Transmission status	Status commands
DLE EOT n	Real-time transmission status	
DLE ENQ n	Real-time print request	
GS a n	Allow and prohibit automatic status reply (ASB)	
[COMMAND]+[Parameter]	Agreement	Label commands
1A 5B 00	Page control command	
1A 5D 00	Page start command	
1A 4F 00	Page end command	
1A 0C 00	Paper feed command	
1A 54 00 x_L x_H y_L y_H	Text drawing command	
1A 5C 00 StartX_L StartX_H	Line drawing command	
1A 26 00 Left_L Left_H	Rectangular frame drawing command	
1A 2A 00 Left_L Left_H	Draw rectangle block command	
1A 30 00 x_L x_H	One-dimensional barcode command	
1A 31 00	QRCode barcode command	
1A 31 01 ColNum	PDF417 barcode command	
1A 21 00	Bitmap command	
ESC @	Initialize printer	Other commands
DC2 T	Print the self-test page	
ESC 7	Set print density	
ESC p m t1 t2	Generate cash drawer pulse (OnlyForDrawer)	

7 The detail of commands

7.1 Print and feed command

Print and feed paper

Name	Print and line feed
Format	ASCII : LF Decimal : 10 Hex : 0A
Description	Print the content in the print buffer, and then set the paper feed one line according to the current line spacing, and adjust the printing position to the beginning of the next line.
Range	
Default	
Support model	All the printers
Note	
For Example	

Enter

Name	Enter
Format	ASCII : CR Decimal : 13 Hex : 0D
Description	When the print buffer is not empty, the effect is the same as LF, otherwise it has no effect.
Range	
Default	
Support model	All the printers
Note	
For Example	

Print and feed paper n dots

Name	Print and feed paper n dots
Format	ASCII : ESC J n Decimal : 27 74 n Hex : 1B 4A n
Description	Print the content in the print buffer and feed the paper n points
Range	$0 \leq n \leq 255$
Default	
Support model	All the printers
Note	When the print buffer is empty, only feed n dots After this command is executed, the printing position moves to the start position

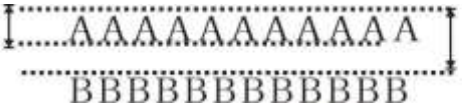
	of the next line
For Example	1b 40 30 31 32 1b 4a 10

Print and feed paper n lines

Name	Print and feed n lines
Format	ASCII : ESC d n Decimal : 27 100 n Hex : 1B 64 n
Description	Print the content in the print buffer and feed n lines
Range	$0 \leq n \leq 255$
Default	
Support modal	All the printers
Note	This command sets the printing start position as the beginning of the line
For example	1b 40 30 31 32 1b 64 01

7.2 Print setting commands

Set the line spacing to n dots

Name	Set the line spacing to n dots
Format	ASCII : ESC 3 n Decimal : 27 51 n Hex : 1B 33 n
Description	Set the line spacing to n dots
Range	$0 \leq n \leq 255$
Default	n = 33
Support modal	All the printers
Note	<p>The line spacing is as follows:</p>  <p>Character width</p> <p>Line spacing</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>□□ The line spacing can be set default values,when appear ESC 2,ESC @, reset the printer and printer power</p>
For 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 the line spacing to the default value

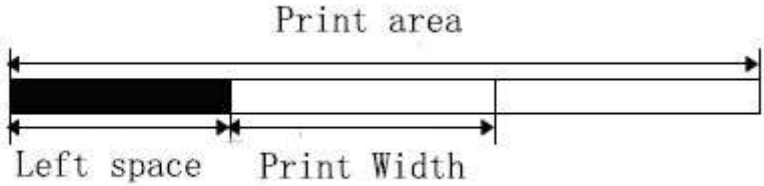
Name	Set the line spacing to the default value
Format	ASCII : ESC 2 Decimal : 27 50 Hex : 1B 32
Description	Set the line spacing to the default 33 points
Range	
Default	
Support modal	All the printers
Note	See the ESC 3 command for details of the line spacing. If the set line spacing is less than the maximum character height in a line, then the line spacing is equal to the maximum character height. You can use ESC 3 to customize the line spacing.
For example	

Set print position

Name	Set print position
Format	ASCII : ESC \$ nL nH Decimal : 27 36 nL nH Hex : 1B 24 nL nH
Description	Adjust the printing position to the point (nL + nH × 256) from the starting position of printing.
Range	$0 \leq nL \leq 255$, $0 \leq nH \leq 255$
Default	
Support modal	All the printers
Note	This command is only valid for this line, and the printing position is reset to the printing start position after line feed. If it exceeds the printing range, move to the next line for printing.
For example	1b 40 1b 24 08 00 30 31 32 0d 0a 30 31 32 0d 0a

Set the amount of left margin

Name	Set the amount of left margin
Format	ASCII : GS L nL nH Decimal : 29 76 nL nH Hex : 1D 4C nL nH
Description	Set the left margin to (nL + nH × 256) dots
Range	$0 \leq nL \leq 255$, $0 \leq nH \leq 255$
Default	
Support modal	All the printers
Note	This command is only effective in a line of the starting position of the treatment.

	<p>As shown in the figure:</p>  <p>If set outside the printable area, use the maximum printing unit.</p>
For example	<pre>1b 40 1d 4c 08 00 30 31 32 0d 0a 30 31 32 0d 0a</pre>

Set the left margin

Name	Set the left margin
Format	ASCII : ESC B n Decimal : 27 66 n Hex : 1B 42 n
Description	Set the left margin of the character to n points
Range	$0 \leq n \leq 47$
Default	0
Support modal	All the printers
Note	
For example	<pre>1B 40 1B 42 08 30 31 32 0D 0A</pre>

Set the right spacing of characters

Name	Set the right spacing of characters
Format	ASCII : ESC SP n Decimal : 27 32 n Hex : 1B 20 n
Description	Set the spacing on the right side of the character to $[n \times 0.125 \text{ mm}]$.
Range	$0 \leq n \leq 255$
Default	0
Support modal	All the printers
Note	<p>For double-width mode, the character spacing on the right is twice that in normal mode. When the characters are enlarged, the character spacing on the right is n times that of the normal mode.</p> <p>· · This command does not affect the setting of Chinese characters.</p>
For example	<pre>1B 40 1B 20 18 30 31 32 0D 0A</pre>

Choose font

Name	Choose font												
Format	ASCII : ESC M n Decimal : 27 77 n Hex : 1b 4d n												
Description	Select character font <table border="1"> <thead> <tr> <th>n</th><th>Function</th></tr> </thead> <tbody> <tr> <td>0, 48</td><td>Choose font A (12×24) 。</td></tr> <tr> <td>1, 49</td><td>Choose font B (9×24) 。</td></tr> <tr> <td>2, 50</td><td>Choose font C (9×17)</td></tr> <tr> <td>3, 51</td><td>Choose font D (8×16)</td></tr> <tr> <td>4, 52</td><td>Choose font E (16×18)</td></tr> </tbody> </table>	n	Function	0, 48	Choose font A (12×24) 。	1, 49	Choose font B (9×24) 。	2, 50	Choose font C (9×17)	3, 51	Choose font D (8×16)	4, 52	Choose font E (16×18)
n	Function												
0, 48	Choose font A (12×24) 。												
1, 49	Choose font B (9×24) 。												
2, 50	Choose font C (9×17)												
3, 51	Choose font D (8×16)												
4, 52	Choose font E (16×18)												
Range	n = 0, 1, 2, 3, 4, 48, 49, 50, 51, 52												
Default	n = 0												
Support modal	Some models												
Note	<ul style="list-style-type: none"> • ESC! Can also select the font type. But the settings made by the last received command are valid. 												
For example	1b 40 1b 4d 00 30 31 32 0d 0a 1b 4d 01 30 31 32 0d 0a 1b 4d 02 30 31 32 0d 0a 1b 4d 03 30 31 32 0d 0a 1b 4d 04 30 31 32 0d 0a												

Set character printing method

Name	Set character printing method			
Format	ASCII : ESC ! n Decimal : 27 33 n Hex : 1B 21 n			
Description	Set the character printing mode (font, reverse, invert, bold, double height, double width, and underline). The bits of parameter n are defined as follows:			
	Bit	Function	Value	
			0	1
	0	Font	Normal	Small
	1	Undefined		
	2	Undefined		
	3	Bold	Cancel	Set

	4	Double height	Cancel	Set
	5	Double width	Cancel	Set
	6	Undefined		
	7	Underline	Cancel	Set
Range				
Default	n = 0			
Support modal	All the printers			
Note	This command is valid for both Chinese fonts and foreign fonts. When ESC @, printer reset, power off, the setting of this command is invalid.			
For 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																																																							
Format	ASCII : GS ! n Decimal : 29 33 n Hex : 1d 21 n																																																							
Description	Set the character size to 1-8 times the width and 1-8 times the height. It is defined as follows: Use 0 to 3 digits to set the character height, 4 to 7 digits to set the character width as shown below. <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Table 1</p> <p>Character width setting</p> <table border="1"> <thead> <tr> <th>HEX</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-width)</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</p> <p>Character height setting</p> <table border="1"> <thead> <tr> <th>HEX</th><th>Decimal</th><th>width</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-height)</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>		HEX	Decimal	width	00	0	1(normal)	10	16	2(double-width)	20	32	3	30	48	4	40	64	5	50	80	6	60	96	7	70	112	8	HEX	Decimal	width	00	0	1(normal)	01	1	2(double-height)	02	2	3	03	3	4	04	4	5	05	5	6	06	6	7	07	7	8
HEX	Decimal	width																																																						
00	0	1(normal)																																																						
10	16	2(double-width)																																																						
20	32	3																																																						
30	48	4																																																						
40	64	5																																																						
50	80	6																																																						
60	96	7																																																						
70	112	8																																																						
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00	0	1(normal)																																																						
01	1	2(double-height)																																																						
02	2	3																																																						
03	3	4																																																						
04	4	5																																																						
05	5	6																																																						
06	6	7																																																						
07	7	8																																																						
Range																																																								
Default	n = 0																																																							

Support modal	All the printers
Note	This command is valid for Chinese fonts and foreign fonts except HRI characters When ESC @, printer reset, power off, the setting of this command is invalid.
For example	1b 40 1d 21 11 30 31 32 0d 0a 30 31 32 0d 0a

Set and cancel reverse printing

Name	Set and cancel reverse printing
Format	ASCII : GS B n Decimal : 29 66 n Hex : 1d 42 n
Description	Set or cancel the reverse white printing mode. <input type="checkbox"/> When the least significant bit of n is 0, the reverse white mode is turned off. <input type="checkbox"/> When the least significant bit of n is 1, the reverse white mode is turned on.
Range	
Default	n = 0
Support modal	All the printers
Note	<input type="checkbox"/> Only the least significant bit of n is valid. <input type="checkbox"/> This command is valid for both built-in characters and user-defined characters. <input type="checkbox"/> When the white reverse mode is turned on, it is also effective for the blank set by ESC SP. <input type="checkbox"/> This command does not affect bitmaps, user-defined bitmaps, bar codes, HRI characters, and the space skipped by HT, ESC \$. <input type="checkbox"/> This command does not affect the line spacing. <input type="checkbox"/> The reverse white mode takes precedence over the underline mode. When inverting white mode is set, even if the underline mode is turned on, it is prohibited (but not canceled). <input type="checkbox"/> When ESC @, printer reset, power off, the setting of this command is invalid.
For example	1b 40 1d 42 01 30 31 32 0d 0a 30 31 32 0d 0a

Set and remove underline

Name	Set and remove underline						
Format	ASCII : ESC - n Decimal : 27 45 n Hex : 1B 2D n						
Description	Set/disable the underline mode based on the following n value: <table border="1"> <thead> <tr> <th>n</th><th>Function</th></tr> </thead> <tbody> <tr> <td>0, 48</td><td>Disable underline mode</td></tr> <tr> <td>1, 49</td><td>Set underline mode (1 point thick)</td></tr> </tbody> </table>	n	Function	0, 48	Disable underline mode	1, 49	Set underline mode (1 point thick)
n	Function						
0, 48	Disable underline mode						
1, 49	Set underline mode (1 point thick)						

	2, 50	Set underline mode (2 points thick)	
Range	$0 \leq n \leq 2, 48 \leq n \leq 50$		
Default	$n = 0$		
Support modal	All the printers		
Note	<p><input type="checkbox"/> The printer can print an underline for all characters (including the space on the right side of the character), except for the blank set by HT.</p> <p><input type="checkbox"/> The printer cannot print underlined characters rotated 90° clockwise and reversed characters.</p> <p><input type="checkbox"/> When the underline mode is cancelled by setting the value of n to 0 or 48, the subsequent data will not be printed underline, and the thickness of the underline set before the underline mode is cancelled will not change. The default underline thickness is 1 point.</p> <p><input type="checkbox"/> Changing the character size does not affect the thickness of the current underline.</p> <p><input type="checkbox"/> Using ESC! Can also set or cancel the underline mode. But note that the last command received is valid.</p>		
For 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 and cancel 90° rotation printing

Name	Set and cancel 90° rotation printing
Format	ASCII : ESC V n Decimal : 27 86 n Hex : 1B 56 n
Description	Set or cancel 90° rotation printing. <input type="checkbox"/> When n is equal to 0 or 48, the 90° rotation printing is released. <input type="checkbox"/> When n is equal to 1 or 49, set 90° rotation printing.
Range	$0 \leq n \leq 1, 48 \leq n \leq 49$
Default	$n = 0$
Support modal	All the printers
Note	<p><input type="checkbox"/> When the underline mode is set, the printer will not underline the characters rotated 90° clockwise.</p> <p><input type="checkbox"/> In the clockwise 90° rotation mode, the direction of the double height and double width commands to enlarge the characters is opposite to the direction of the double height and double width commands to enlarge the characters in the normal mode.</p> <p><input type="checkbox"/> When ESC (@, printer reset, power off, the setting of this command is invalid.</p>
For example	<pre>1b 40 1b 56 01 30 31 32 0d 0a 30 31 32 0d 0a</pre>

Set and cancel bold printing



Name	Set and cancel bold printing
Format	ASCII : ESC E n Decimal : 27 69 n Hex : 1B 45 n
Description	Set or cancel the bold print mode. <input type="checkbox"/> When the least significant bit of n is 0, the bold printing mode is released. <input type="checkbox"/> When the least significant bit of n is 1, set the bold print mode.
Range	$0 \leq n \leq 255$
Default	n = 0
Support modal	All the printers
Note	<input type="checkbox"/> Only the least significant bit of n is allowed <input type="checkbox"/> This command and ESC! Set and cancel the bold printing mode in the same way. Be careful when using this command and ESC! At the same time. <input type="checkbox"/> When ESC @, printer reset, power off, the setting of this command is invalid
For example	1b 40 1b 45 01 30 31 32 0d 0a 1b 40 1b 45 00 30 31 32 0d 0a 1b 40 1b 45 01 B0 AE C9 CF D7 D4 BC BA 0D 0A 1b 40 1b 45 00 B0 AE C9 CF D7 D4 BC BA 0D 0A

Set and cancel overlap printing

Name	Set and cancel overlap printing
Format	ASCII : ESC G n Decimal : 27 71 n Hex : 1B 47 n
Description	Set or release the overlap printing mode. <input type="checkbox"/> When the least significant bit of n is 0, the overlap printing mode is released. <input type="checkbox"/> When the least significant bit of n is 1, set the overlap printing mode.
Range	$0 \leq n \leq 255$
Default	n = 0
Support modal	All the printers
Note	<input type="checkbox"/> Only the least significant bit of n is allowed to be used. <input type="checkbox"/> The printer output is the same in overlap mode and bold mode. <input type="checkbox"/> When ESC @, printer reset, power off, the setting of this command is invalid
For example	1b 40 1b 47 00 30 31 32 0d 0a 1b 40 1b 47 01 30 31 32 0d 0a 1b 40 1b 47 01

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

Set and cancel upside-down printing

Name	Set and cancel upside-down printing
Format	ASCII : ESC { n Decimal : 27 123 n Hex : 1B 7B n
Description	<p>Set or cancel the upside-down printing mode.</p> <p><input type="checkbox"/> When the least significant bit of n is 0, the reverse printing mode is turned off.</p> <p><input type="checkbox"/> When the least significant bit of n is 1, the upside-down printing mode is turned on.</p> <div style="text-align: center;"> <p>When the upside-down printing mode is off</p>  <p>When upside-down printing mode is turned</p>  <p>Paper feed direction</p> </div>
Range	$0 \leq n \leq 255$
Default	n = 0
Support modal	All the printers
Note	<p><input type="checkbox"/> Only the least significant bit of n is valid.</p> <p><input type="checkbox"/> This command is only valid when entered at the beginning of a line in the standard mode.</p> <p><input type="checkbox"/> In the upside-down printing mode, the printer first rotates the line to be printed by 180° and then prints.</p> <p><input type="checkbox"/> When ESC @, printer reset, power off, the setting of this command is invalid</p>
For example	1b 40 1b 7b 00 30 31 32 0d 0a 1b 40 1b 7b 01 30 31 32 0d 0a 1b 40 1b 7b 01 B0 AE C9 CF D7 D4 BC BA 0D 0A

Set print alignment

Name	Set print alignment (left, center, right)
Format	ASCII : ESC a n Decimal : 27 97 n Hex : 1B 61 n
Description	Align all data in a row, and the meaning of the value of n is as follows:

	n	Mode
	0,48	On the left
	1,49	Centered
	2,50	To the right
Range	$0 \leq n \leq 2$ or $48 \leq n \leq 50$	
Default	n = 0	
Support modal	All the printers	
Note	After ESC @, printer reset, and power off, the setting of this command becomes invalid.	
For 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	

Set Chinese character mode

Name	Set Chinese character mode
Format	ASCII : FS & Decimal : 28 38 Hex : 1C 26
Description	Select Chinese character mode
Range	
Default	
Support modal	All the printers
Note	When the Chinese character mode is selected, the printer processes all Chinese character codes, two bytes each time. The Chinese character codes are processed in the order of the first byte and the second byte.
For 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 Chinese character printing mode combination

Name	Set Chinese character printing mode combination									
Format	ASCII : FS ! n Decimal : 28 33 n Hex : 1C 21 n									
Description	Set Chinese character printing mode combination									
Range	0 ≤ n ≤ 255									
Default	0									
Support modal	All the printers									
Note	<table><tr><td>Bit</td><td>Off/On</td><td>Hex</td><td>Decimal</td><td>ASB state</td></tr></table>					Bit	Off/On	Hex	Decimal	ASB state
Bit	Off/On	Hex	Decimal	ASB state						

0	—	—	—	Undefined
1	—	—	—	Undefined
2	Off	00	0	Double-width mode is prohibited
	On	04	4	Allow double width mode
3	Off	00	0	Double height mode is prohibited
	On	08	8	Allow double height mode
4	—	—	—	Undefined
5	—	—	—	Undefined
6	—	—	—	Undefined
7	Off	00	0	Prohibit underline mode
	On	80	128	Allow underline mode

When the Chinese character mode is not selected, all character codes are regarded as ASCII codes, and one character at a time is processed.

- When the double-width mode and double-height mode are set at the same time (including the character spacing on the right and left), characters of four times the size will be printed.
- The printer can underline all characters (including the space between the right and left characters), but it cannot underline the spaces set by the HT command and the characters rotated 90° clockwise.
- When some characters in a line are double-height or higher characters, all characters in the line will be aligned along the baseline.
- You can use the GS! Command to write Chinese characters in bold, and the setting of the last received command is valid.

For example

```
1b 40
1C 26
B0 AE C9 CF D7 D4 BC BA 0D 0A
1C 21 00
B0 AE C9 CF D7 D4 BC BA 0D 0A
1C 21 01
B0 AE C9 CF D7 D4 BC BA 0D 0A
1C 21 02
B0 AE C9 CF D7 D4 BC BA 0D 0A
1C 21 04
B0 AE C9 CF D7 D4 BC BA 0D 0A
1C 21 08
B0 AE C9 CF D7 D4 BC BA 0D 0A
1C 21 10
B0 AE C9 CF D7 D4 BC BA 0D 0A
1C 21 20
B0 AE C9 CF D7 D4 BC BA 0D 0A
1C 21 40
B0 AE C9 CF D7 D4 BC BA 0D 0A
```

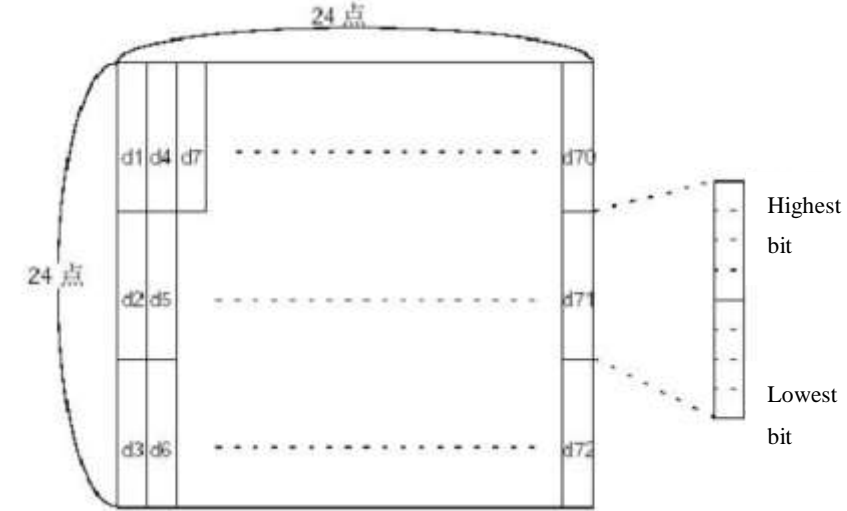
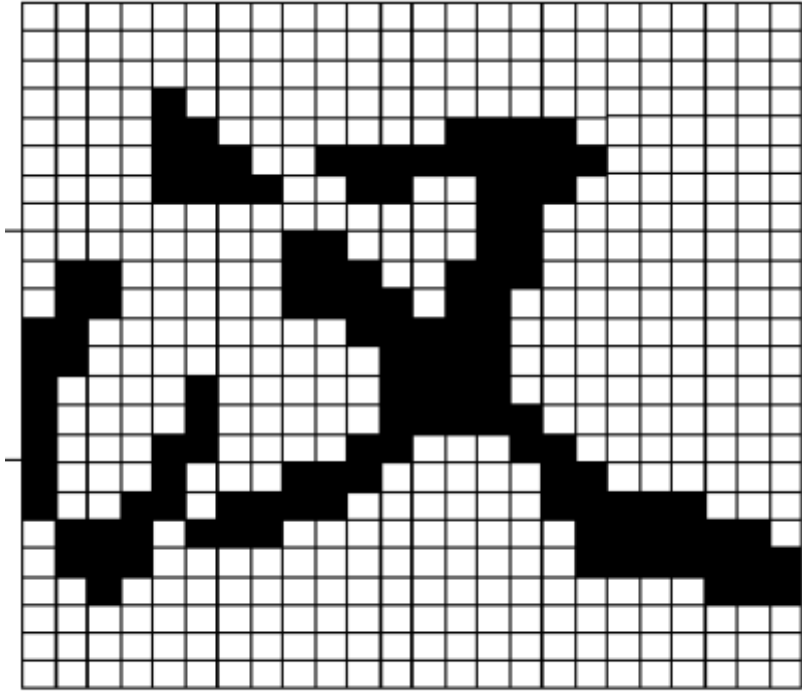
	1C 21 80 B0 AE C9 CF D7 D4 BC BA 0D 0A 1C 2E B0 AE C9 CF D7 D4 BC BA 0D 0A
--	---

Cancel Chinese Character Mode

Name	Cancel Chinese Character Mode
Format	ASCII : FS . Decimal : 28 46 Hex : 1C 2E
Description	Cancel Chinese Character Mode
Range	
Default	
Support modal	All the printers
Note	When the Chinese character mode is not selected, all character codes are regarded as ASCII codes, and one character at a time is processed.
For example	

Define user-defined Chinese characters

Name	Define user-defined Chinese characters
Format	ASCII : FS 2 c1 c2 d1...dk Decimal : 28 50 c1 c2 d1...dk Hex : 1C 32 c1 c2 d1...dk
Description	Define the Chinese characters specified by c1 and c2.
Range	c1, c2 represents the character code of the defined character c1 = FEH $A1H \leq c2 \leq FEH$ $0 \leq d \leq 255$ k = 72
Default	No user-defined Chinese characters
Support modal	Some models
Note	<ul style="list-style-type: none"> c1 and c2 represent the encoding of user-defined Chinese characters, c1 specifies the first byte, and c2 specifies the second byte. d stands for data. 1 means to print a dot, 0 means not to print a dot. Supports up to 32 custom Chinese characters. <p>The relationship between custom Chinese character fonts and data is shown in the figure below:</p>

	<div>  <div>D1=00H, D4=00H, D7=00H, D10=00H. D2=1FH, D5=78H, D8=60H, D11=00H. D3=C0H, D6=30H, D9=38H, D12=70H.</div></div>
For example	<div>1C 32 FE A1 FF FE A1 C1 C1 0D 0A</div>

Choose an international character set

Name	Choose an international character set
Format	ASCII : ESC R n

	Decimal : 27 82 n Hex: 1B 52 n																																		
Description	<p>Select the value of n to set the international character set according to the following table</p> <table> <tr> <th>n</th><th>character set</th></tr> <tr><td>0</td><td>USA</td></tr> <tr><td>1</td><td>France</td></tr> <tr><td>2</td><td>Germany</td></tr> <tr><td>3</td><td>U.K</td></tr> <tr><td>4</td><td>Denmark I</td></tr> <tr><td>5</td><td>Sweden</td></tr> <tr><td>6</td><td>Italy</td></tr> <tr><td>7</td><td>Spain I</td></tr> <tr><td>8</td><td>Japan</td></tr> <tr><td>9</td><td>Norway</td></tr> <tr><td>10</td><td>Denmark II</td></tr> <tr><td>11</td><td>Spain II</td></tr> <tr><td>12</td><td>Latin America</td></tr> <tr><td>13</td><td>South Korea</td></tr> <tr><td>14</td><td>Slovenia</td></tr> <tr><td>15</td><td>China</td></tr> </table>	n	character set	0	USA	1	France	2	Germany	3	U.K	4	Denmark I	5	Sweden	6	Italy	7	Spain I	8	Japan	9	Norway	10	Denmark II	11	Spain II	12	Latin America	13	South Korea	14	Slovenia	15	China
n	character set																																		
0	USA																																		
1	France																																		
2	Germany																																		
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4	Denmark I																																		
5	Sweden																																		
6	Italy																																		
7	Spain I																																		
8	Japan																																		
9	Norway																																		
10	Denmark II																																		
11	Spain II																																		
12	Latin America																																		
13	South Korea																																		
14	Slovenia																																		
15	China																																		
Range	$0 \leq n \leq 15$																																		
Default	0																																		
Support modal	All the printers																																		
Note																																			
For 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 page

Name	Select character code page								
Format	ASCII : ESC t n Decimal : 27 116 n Hex : 1B 74 n								
Description	<p>Select n from the character code page</p> <table> <tr> <th>N</th><th>Code Page</th></tr> <tr> <td>0</td><td>CP437 [U.S.A., Standard Europe]</td></tr> <tr> <td>1</td><td>KataKana</td></tr> <tr> <td>2</td><td>CP850 [Multilingual]</td></tr> </table>	N	Code Page	0	CP437 [U.S.A., Standard Europe]	1	KataKana	2	CP850 [Multilingual]
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 Cyrillic #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 Europe]
	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]

	<table border="1"> <tr><td>44</td><td>ISO-8859-15 [Latin 3]</td></tr> <tr><td>45</td><td>Thai2</td></tr> <tr><td>46</td><td>CP856</td></tr> <tr><td>47</td><td>Cp874</td></tr> <tr><td>255</td><td>GBK2312</td></tr> </table>	44	ISO-8859-15 [Latin 3]	45	Thai2	46	CP856	47	Cp874	255	GBK2312
44	ISO-8859-15 [Latin 3]										
45	Thai2										
46	CP856										
47	Cp874										
255	GBK2312										
Range	$0 \leq n \leq 255$										
Default	0										
Support modal	All the printers										
Note											
For 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										

Toggle double-byte encoding

Name	Toggle double-byte encoding														
Format	ASCII : ESC 9 n Decimal : 27 56 n Hex : 1B 39 n														
Description	<p>The corresponding codes of n are as follows:</p> <table border="1"> <tr><td>n</td><td>coding</td></tr> <tr><td>0</td><td>GBK</td></tr> <tr><td>1</td><td>UTF8</td></tr> <tr><td>2</td><td>Reserve</td></tr> <tr><td>3</td><td>BIG5</td></tr> <tr><td>4</td><td>SHIFT-JIS</td></tr> <tr><td>5</td><td>EUC-KR</td></tr> </table>	n	coding	0	GBK	1	UTF8	2	Reserve	3	BIG5	4	SHIFT-JIS	5	EUC-KR
n	coding														
0	GBK														
1	UTF8														
2	Reserve														
3	BIG5														
4	SHIFT-JIS														
5	EUC-KR														
Range	$0 \leq n \leq 5$														
Default	0														
Support modal	Some models														
Note	The Chinese character mode must be enabled before use (1C 26 command can be enabled)														
For example	1B 40 1C 26 1B 39 01														

7.3 Graphic printing commands

Graph vertical modulo data filling

Name	Graph vertical modulo data filling																						
Format	ASCII : ESC * m Hl Hh [d]k Decimal : 27 42 m Hl Hh [d]k Hex : 1B 2A m Hl Hh [d]k																						
Description	<p>Print the longitudinal modulus image data, the parameter meaning is as follows: m is the dot image format:</p> <table border="1"> <thead> <tr> <th>m</th><th>mode</th><th>Horizontal ratio</th><th>Vertical ratio</th></tr> </thead> <tbody> <tr> <td>0</td><td>8 dots single density</td><td>×2</td><td>×3</td></tr> <tr> <td>1</td><td>8 dots double density</td><td>×1</td><td>×3</td></tr> <tr> <td>32</td><td>24 dots single density</td><td>×2</td><td>×1</td></tr> <tr> <td>33</td><td>24 dots double density</td><td>×1</td><td>×1</td></tr> </tbody> </table> <p>Hl and Hh are the number of points in the horizontal direction ($Hl + 256 \times Hh$) [d]k is the point graph data k is used to indicate the number of bytes of the dot graph data, and does not participate in the transmission</p>			m	mode	Horizontal ratio	Vertical ratio	0	8 dots single density	×2	×3	1	8 dots double density	×1	×3	32	24 dots single density	×2	×1	33	24 dots double density	×1	×1
m	mode	Horizontal ratio	Vertical ratio																				
0	8 dots single density	×2	×3																				
1	8 dots double density	×1	×3																				
32	24 dots single density	×2	×1																				
33	24 dots double density	×1	×1																				
Range	<p>XX58:</p> <p>$m = 0, 1, 32, 33$ $1 \leq Hl + Hh \times 256 \leq 384$ $0 \leq d \leq 255$ $k = Hl + Hh \times 256$ (当 $m = 0, 1$) $k = (Hl + Hh \times 256) \times 3$ (当 $m = 32, 33$)</p> <p>XX80:</p> <p>$m = 0, 1, 32, 33$ $1 \leq Hl + Hh \times 256 \leq 576$ $0 \leq d \leq 255$ $k = Hl + Hh \times 256$ (当 $m = 0, 1$) $k = (Hl + Hh \times 256) \times 3$ (当 $m = 32, 33$)</p>																						
Default																							
Support modal	All the printers																						
Note	<p>[d]k If the corresponding bit is 1, it means that the dot is printed, and the corresponding bit is 0, which means that the dot is not printed.</p> <p>The part of the image that exceeds the printing area in the horizontal direction will be ignored.</p> <p>The relationship between the dot graph data and the printing effect is as follows:</p>																						

	<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>8 dots direction</p> <p>Dot plot data(bitmap)</p> </div> <div style="text-align: center;"> <p>24 dots direction</p> <p>Dot plot data(bitmap)</p> </div> </div> <ul style="list-style-type: none"> · This command only fills the print buffer. The printing of the image will not start until the print command is received. The print buffer will be emptied after the image is printed. · If the height of the image to be printed is large, you can first split it into several images with a height of 8 (m = 0, 1) or 24 (m = 32, 33) dots and print them separately · After filling the graphic data, you can continue to fill in other information, so that the graphic and other information are printed together · After filling the dot image, generally use the ESC J (n = 24) command to print, and you can also use the LF command to print, but the LF command will trigger the paper feeding operation (feeding paper at the line spacing), which makes the multi-line image intermittently discontinuous. You can set the line spacing to 0, so the paper will not be fed too much. (Dollar printer will start to shift, if there is a disconnection in the middle, please send data continuously)
For example	<pre>1B 40 1b 2a 00 0C 00 FF FF FF FF FF FF FF FF FF FF FF 1B 33 00 0A</pre>

Image horizontal modulo data printing

Name	Image horizontal modulo data printing			
Format	ASCII : GS v 0			
	Decimal : 29 118 48 m xL xH yL yH [d]k			
	Hex : 1D 76 30 m xL xH yL yH [d]k			
Description	Print horizontal modulus image data, the parameter meaning is as follows: m is the bitmap mode:			
	m	Mode	Horizontal ratio	Vertical ratio
	0,48	normal	× 1	× 1
	1,49	Double width	× 2	× 1
	2,50	Double height	× 1	× 2
	3,51	Double width and height	× 2	× 2
<ul style="list-style-type: none"> · xL, xH are the number of bytes in the horizontal direction (xL + xH × 256) · yL and yH are the number of points in the vertical direction (yL + yH × 256) · [d]k is the point graph data 				

	<ul style="list-style-type: none">· k is the number of bytes of the dot graph data, k is used for illustration, no need to transmit																				
Range	<p>XX58:</p> <p>$0 \leq m \leq 3; 48 \leq m \leq 51$</p> <p>$1 \leq xL + xH \times 256 \leq 48$</p> <p>$0 \leq yL \leq 255, 0 \leq yH \leq 255$</p> <p>$0 \leq d \leq 255$</p> <p>$k = (Hl + Hh \times 256) \times (yL + yH \times 256)$</p> <p>XX80:</p> <p>$0 \leq m \leq 3; 48 \leq m \leq 51$</p> <p>$1 \leq xL + xH \times 256 \leq 72$</p> <p>$0 \leq yL \leq 255, 0 \leq yH \leq 255$</p> <p>$0 \leq d \leq 255$</p> <p>$k = (Hl + Hh \times 256) \times (yL + yH \times 256)$</p>																				
Default																					
Support modal	All the printers																				
Note	<p><input type="checkbox"/> [d]k If the corresponding bit is 1, it means that the dot is printed, and the corresponding bit is 0, which means that the dot is not printed.</p> <p>If the number of horizontal bytes of the image exceeds the printable area, the excess part will be ignored.</p> <p><input type="checkbox"/> When this command is executed, the paper is fed according to the size of the image, and it is not affected by the line spacing settings of ESC 2, ESC 3.</p> <p><input type="checkbox"/> After this command is executed, the print coordinates are reset to the left margin position, and the image content is cleared.</p> <p>The relationship between bitmap data and printing effect is as follows:</p> <table><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><tr><td>MSB</td><td>LSB</td><td>MSB</td><td>LSB</td></tr></table> <p>This command has a printing function, printing while transferring data, no need to use the printing command</p>	d1	d2	dx	d(x+1)	d(x+2)	d(x+2)			d(k-2)	d(k-1)	dk	MSB	LSB	MSB	LSB
d1	d2	dx																		
d(x+1)	d(x+2)	d(x+2)																		
																				
.....	d(k-2)	d(k-1)	dk																		
MSB	LSB	MSB	LSB																		
For example	<p>1B 40</p> <p>1d 76 30 00 03 00 09 00</p> <p>FF FF</p> <p>FF FF FF</p>																				

Define download bitmap

Name	Define download bitmap
------	------------------------

Format	ASCII : GS * x y d1...d(x×y×8) Decimal : 29 42 x y d1 ...d(x×y×8) Hex : 1D 2A x y d1...d(x×y×8)
Description	Use x and y to specify the number of points to define the download bitmap. x specifies the number of dots in the horizontal direction as 8*x. y specifies the number of points in the vertical direction as 8*y.
Range	$1 \leq x \leq 255$ $1 \leq y \leq 48$ $x*y \leq 1536$ $0 \leq d \leq 255$
Default	
Support modal	All the printers
Note	<p>If x*y exceeds the specified range, this command is forbidden.</p> <p>□□d represents bitmap data. Data (d) specifies that the printing bit is 1, and the non-printing bit is 0.</p> <p>□□Clear the downloading bitmap definition under the following conditions:</p> <ul style="list-style-type: none"> Execute ESC @. Execute ESC &. <p>The printer resets or turns off the power.</p> <p>□□The relationship between the downloaded bitmap and the print data is shown in the figure below:</p>
For example	1B 40 1D 2A 03 03 FF

	FF 1D 2F 00
--	--

Print download bitmap

Name	Print download bitmap										
Format	ASCII : GS / m Decimal : 29 47 m Hex : 1D 2F m										
Description	Use the mode specified by m to print the downloaded bitmap <table border="1"> <thead> <tr> <th>m</th><th>Mode</th></tr> </thead> <tbody> <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>Double width, double height</td></tr> </tbody> </table>	m	Mode	0, 48	normal	1, 49	Double width	2, 50	Double height	3, 51	Double width, double height
m	Mode										
0, 48	normal										
1, 49	Double width										
2, 50	Double height										
3, 51	Double width, double height										
Range	$0 \leq m \leq 3$ $48 \leq m \leq 51$										
Default											
Support modal	All the printers										
Note	If the bitmap data is not defined, this command is ignored. <input type="checkbox"/> <input type="checkbox"/> Under standard mode, this command is only valid when there is no data in the print buffer. <input type="checkbox"/> This command is invalid in printing mode (bold, overlap, underline, character size or reverse white printing), except for reverse printing mode. <input type="checkbox"/> <input type="checkbox"/> If the downloaded bitmap to be printed exceeds the printing area, the excess data will not be printed.										
For example											

Define NV bitmap

Name	Define NV bitmap
Format	ASCII : FS q n [xL xH yL yH d1...dk]1...[xL xH yL yH d1...dk]n Decimal : 28 113 n [xL xH yL yH d1...dk]1...[xL xH yL yH d1...dk]n Hex : 1C 71 n [xL xH yL yH d1...dk]1...[xL xH yL yH d1...dk]n
Description	Define the NV bitmap with a specific value of n. <input type="checkbox"/> <input type="checkbox"/> n specifies the number of defined NV bit images. <input type="checkbox"/> <input type="checkbox"/> xL, xH specify the number of points in the horizontal direction for the NV bit image in the definition as $(xL+xH*256)*8$. <input type="checkbox"/> <input type="checkbox"/> yL, yH specify the number of points in the vertical direction for the NV bit image in the definition as $(yL+yH*256)*8$.
Range	$1 \leq n \leq 255$ $0 \leq xL \leq 255$ $0 \leq xH \leq 3$ $(1 \leq (xL+xH*256) \leq 1023)$

	$0 \leq yL \leq 255$ $0 \leq yH \leq 1$ $(1 \leq (yL+yH*256) \leq 288)$ $0 \leq d \leq 255$ $k = (xL+xH*256)*(yL+yH*256)*8$ Data area defined by sum meter = 64K bytes
Default	
Support modal	All the printers
Note	<p>Frequent execution of write commands may damage the NV memory. Therefore, it is recommended to perform no more than 10 write operations on the NV memory a day.</p> <p>After the process of putting an image into the NV memory, the printer performs a hardware reset operation. Therefore, user-defined characters and download bitmaps should be defined after completing this command. Printer clean</p> <p>In addition to receiving and printing buffers, and reset to the effective mode when the power is turned on. (Does not support hardware reset interface).</p> <p>This command cancels all NV bitmaps that have been defined with this command.</p> <p>□□ From the beginning of the processing of this command to the completion of the hardware reset, mechanical operations cannot be performed (including initializing the position of the print head when the cover is opened and using the paper feed button to feed paper, etc.).</p> <p>□□ During this command processing, when writing data to the user's NV memory, the printer is busy and stops receiving data. Therefore, during the execution of this command, it is forbidden to transmit data, including real-time commands.</p> <p>□□ NV bitmap is a bitmap defined in non-volatile memory. Use FS q to define FS p to print.</p> <p>□□ In standard mode, this command is only valid at the beginning of a line.</p> <p>□□ The command is valid only after the 7 bytes of the command <FS□yH> are processed normally.</p> <p>□□ When the amount of data exceeds the left capacity of the range defined by xL, xH, yL, yH, the printer will process the range defined by xL, xH, yL, yH outside the defined range.</p> <p>□□ In the first group of bitmaps, when any parameter in xL, xH, yL, yH exceeds the defined range, this command is forbidden.</p> <p>□□ In a group of bitmaps other than the first group, when the printer encounters a situation where xL, xH, yL, yH exceeds the defined range, it will stop processing this command and start writing NV images. At this time, the undefined NV bitmap is prohibited (undefined,) but any previously defined NV bitmap is still valid.</p> <p>□□ d means 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.</p> <p>□□ This command defines n as the number of NV bit images. The quantity increases sequentially from the bitmap 01H. Therefore, the first data group [xL xH yL yH d1...dk] is the NV bit image 01H, and the last data group [xL xH yL yH d1...dk] is the NV bit image n. The total number is consistent with the number of NV bit images set</p>

by the FS p command.

□□ The definition data of an NV bit image is composed of [xL xH yL yH d1...dk]. Therefore, when there is only one NV bit image, $n=1$, the printer only processes the 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.

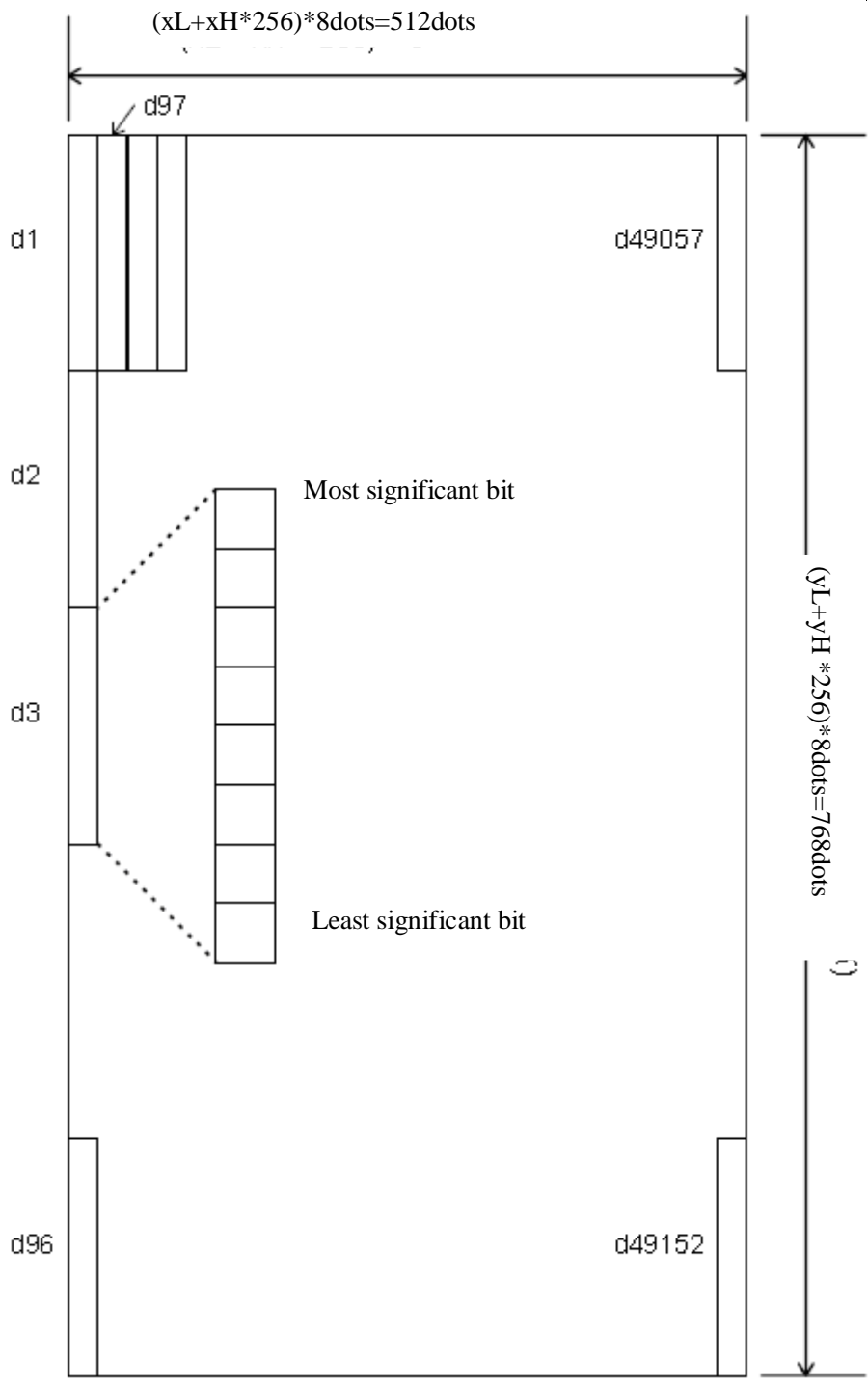
□□ The defined area in this printer is 192K bytes (maximum). This command can define several bitmaps, but it cannot define a bitmap whose total data capacity [bitmap data+head] exceeds 192K bytes.

□□ Even if ASB is set, the printer will not transmit ASB status or perform status detection while processing this command.

□□ Once an NV bit image is defined, it cannot be deleted by executing the ESC @ command, resetting, or powering off.

□□ This command only executes the definition of the NV bit image, and does not execute printing. The printing of the NV bit image is executed by the FS p command.

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

	
For example	<pre>1B 40 1C 71 01 03 00 03 00 FF 1C 70 01 00</pre>

Print NV bitmap

Name	Print NV bitmap										
Format	ASCII : FS p n m Decimal : 28 112 n m Hex : 1C 70 n m										
Description	Print NV bitmap in the mode specified by m <table border="1"> <thead> <tr> <th>m</th><th>Mode</th></tr> </thead> <tbody> <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>Double width, double height</td></tr> </tbody> </table>	m	Mode	0, 48	normal	1, 49	Double width	2, 50	Double height	3, 51	Double width, double height
m	Mode										
0, 48	normal										
1, 49	Double width										
2, 50	Double height										
3, 51	Double width, double height										
Range	$0 \leq m \leq 3$ $48 \leq m \leq 51$ $1 \leq n \leq 255$										
Default											
Support modal	All the printers										
Note	<p>n is the number of NV bit images (defined with the FS q command).</p> <p>□□m specifies the bitmap mode.</p> <p>NV bitmap is a bitmap defined in non-volatile memory. Use FS q to define FS p to print.</p> <p>□□This command is invalid when the specified NV bit image does not exist.</p> <p>□□In standard mode, this command is valid only when there is no data in the print buffer.</p> <p>□□This command is not affected by the print mode (bold print, overlap, underline, character size, reverse white print or character 90°), except for the reverse print mode such as rotation.</p> <p>□□If the downloaded bitmap to be printed exceeds one line, the excess data will not be printed.</p> <p>□□In normal and double-width modes, this command feeds paper n points (n is the NV bit image height), in double-height and quadruple size modes (the command feeds paper 2n points, n is the NV bit image height), It has nothing to do with the line spacing set by ESC 2 or ESC 3.</p> <p>□□After printing the bitmap, this command sets the print position at the beginning of a line, and processes the subsequent data as normal data.</p>										
For example											

Print raster bitmap

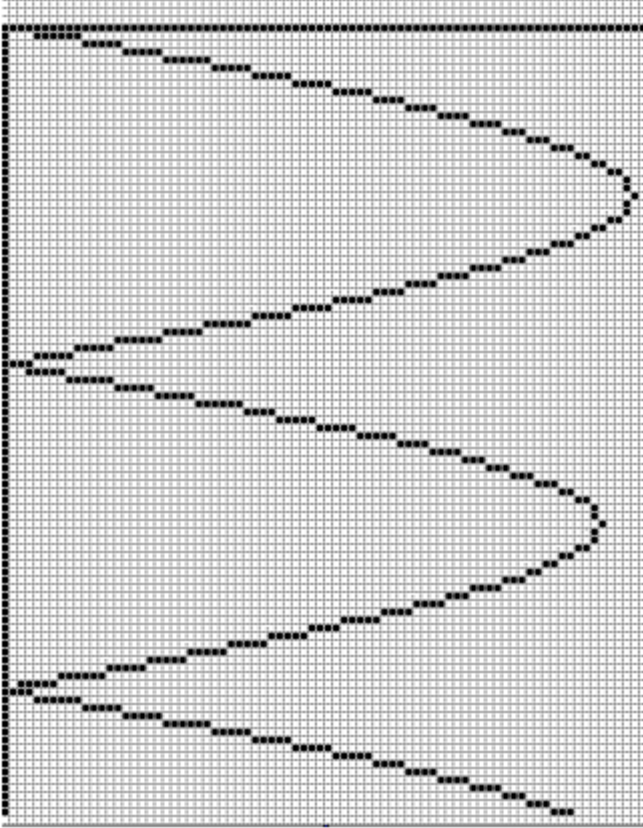
Name	Print raster bitmap
Format	ASCII : GS v 0 m xL xH yL yH d1...dk Decimal : 29 118 48 m xL xH yL yH d1...dk Hex : 1D 76 30 m xL xH yL yH d1...dk
Description	To print a raster bitmap, select the raster bitmap mode by the value of m:

	<table><tr><th>m</th><th>Mode</th><th>Vertical resolution (DPI)</th><th>Horizontal resolution (DPI)</th></tr><tr><td>0,48</td><td>normal</td><td>200</td><td>200</td></tr><tr><td>1,49</td><td>Double width</td><td>200</td><td>100</td></tr><tr><td>2,50</td><td>Double height</td><td>100</td><td>200</td></tr><tr><td>3,51</td><td>Double width, double height</td><td>100</td><td>100</td></tr></table>	m	Mode	Vertical resolution (DPI)	Horizontal resolution (DPI)	0,48	normal	200	200	1,49	Double width	200	100	2,50	Double height	100	200	3,51	Double width, double height	100	100																
m	Mode	Vertical resolution (DPI)	Horizontal resolution (DPI)																																		
0,48	normal	200	200																																		
1,49	Double width	200	100																																		
2,50	Double height	100	200																																		
3,51	Double width, double height	100	100																																		
Range	<div>0 ≤ m ≤ 3 or 48 ≤ m ≤ 51</div> <div>0 ≤ xL ≤ 255</div> <div>0 ≤ xH ≤ 255</div> <div>0 ≤ yL ≤ 255</div> <div>0 ≤ d ≤ 255</div> <div>k = (xL + xH * 256) * (yL + yH * 256) (k≠0)</div>																																				
Default																																					
Support modal	All the printers																																				
Note	<div><div><input type="checkbox"/> xL, xH indicate the number of bytes of bitmap in the horizontal direction (xL+xH*256)</div><div><input type="checkbox"/> yL, yH indicate the number of bitmap points in the vertical direction (yL+yH*256)</div><div><input type="checkbox"/> In standard mode, this command is valid only when there is no data in the printer buffer.</div><div><input type="checkbox"/> The printing modes such as character enlargement, bolding, double printing, reverse printing, underline, black and white reverse display, etc. are invalid for this command.</div><div><input type="checkbox"/> The part of the bitmap that exceeds the printable area will not be printed.</div><div><input type="checkbox"/> ESC is valid for raster bitmaps.</div><div><input type="checkbox"/> During the macro definition process, this command will stop the macro definition and execute the command. This command is not part of the macro definition.</div><div><input type="checkbox"/> d stands for bitmap data. If the corresponding bit of each byte is 1, it means to print the dot, if it is 0, the dot is not printed.</div></div>																																				
For example	<div>When xL+xH*256=64</div> <div><div><div><div>⋮ ← (xL+xH * 256)*8 dots=512 dots → ⋮</div><table><tr><td>1</td><td>2</td><td>3</td><td>... ..</td><td>62</td><td>63</td><td>64</td></tr><tr><td>65</td><td>66</td><td>67</td><td>... ..</td><td>126</td><td>127</td><td>128</td></tr><tr><td></td><td></td><td></td><td>... ..</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td>... ..</td><td>K-2</td><td>K-1</td><td>K</td></tr></table><div><div>↙</div><table><tr><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table><div>↘</div></div></div><div><div>⋮</div><div>↑</div><div>(xL+xH* 256)dots</div><div>↓</div><div>⋮</div></div></div><div>Lowest bit</div></div>	1	2	3	62	63	64	65	66	67	126	127	128				K-2	K-1	K	7	6	5	4	3	2	1	0
1	2	3	62	63	64																															
65	66	67	126	127	128																															
																																				
			K-2	K-1	K																															
7	6	5	4	3	2	1	0																														

--	--

Print line segment in horizontal position

(curve print command)

Name	Print line segment in horizontal position (curve print command)
Format	ASCII : GS 'n x1sL x1eH x1eL x1eH ...xnsL xnsH xneL xneH Decimal : 1D 27 n x1sL x1eH x1eL x1eH ...xnsL xnsH xneL xneH Hex : 29 39 n x1sL x1eH x1eL x1eH ...xnsL xnsH xneL xneH
Description	<p>The printed enlarged image is as follows: Each horizontal curve segment can be regarded as composed of these points with a segment length of 1. If you print n rows of horizontal line segments, you can use this command continuously to print out the desired curve.</p>  <p>xksL : The low-level horizontal coordinate of the starting point of the K line; xksH : The high-level horizontal coordinates of the starting point of the K line; xkeL : The low-level horizontal coordinate of the end point of the K line; xkeH : The high-level horizontal coordinates of the end point of the K line;</p> <p>The coordinate start position is usually the left side of the printing area. The minimum coordinate is (0,0), the maximum abscissa value is 383, xkeL+xkeH*256</p> <p>Row data can be arranged out of order within the specified range;</p>

```

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

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

    If(y1s<y1)
    {
        PreSendData(&y1s,2); //sin function at the beginning of the line
        PreSendData(&y1,2);  //sin function at the end of the line
    }
    Else
    {
        PreSendData(&y1,2);  //sin function at the beginning of the line
        PreSendData(&y1s,2); //sin function at the end of the line
    }
    If(y2s<y2)
    {
        PreSendData(&y2s,2); //The cos function is at the beginning of the line

```

	<pre> PreSendData(&y2,2); //The cos function is at the end of the line } Else { PreSendData(&y2,2); //The cos function is at the beginning of the line PreSendData(&y2s,2); //The cos function is at the end of the line } y1s=y1; // When printing enters the next line, the abscissa of the starting point of the sin function curve y2s=y2; //When printing enters the next line, the abscissa of the starting point of the cos function curve } </pre>
Range	$0 \leq n \leq 8$
Default	
Support modal	Mobile printer
Note	When printing a dot, xkeL=xksL, xkeH=xksH
For example	<pre> 1d 27 01 00 00 00 00 1d 27 01 01 00 0f 00 1d 27 01 10 00 1f 00 1d 27 01 20 00 2c 00 1d 27 01 2d 00 3a 00 1d 27 01 3b 00 44 00 1d 27 01 45 00 4c 00 1d 27 01 4d 00 54 00 1d 27 01 55 00 5c 00 1d 27 01 5d 00 63 00 1d 27 01 64 00 6a 00 1d 27 01 6b 00 71 00 1d 27 01 72 00 77 00 1d 27 01 78 00 7d 00 1d 27 01 7e 00 84 00 1d 27 01 85 00 8a 00 1d 27 01 8b 00 91 00 1d 27 01 92 00 97 00 1d 27 01 98 00 9d 00 1d 27 01 9e 00 a3 00 1d 27 01 a4 00 a9 00 1d 27 01 aa 00 af 00 1d 27 01 b0 00 b4 00 1d 27 01 b5 00 b9 00 1d 27 01 ba 00 bf 00 1d 27 01 c0 00 c4 00 1d 27 01 c5 00 c9 00 1d 27 01 ca 00 cf 00 1d 27 01 d0 00 d4 00 1d 27 01 d5 00 d8 00 1d 27 01 d9 00 dc 00 1d 27 01 dd 00 df 00 1d 27 01 e0 00 e3 00 1d 27 01 e4 00 e6 00 1d 27 01 e7 00 e9 00 1d 27 01 ea 00 ec 00 1d 27 01 ed 00 ef 00 1d 27 01 f0 00 f1 00 1d 27 01 f2 00 f3 00 1d 27 01 f4 00 f5 00 1d 27 01 f6 00 f7 00 1d 27 01 f8 00 f8 00 1d 27 01 f9 00 fa 00 1d 27 01 fb 00 fb 00 1d 27 01 fc 00 fd 00 1d 27 01 fe 00 fe 00 1d 27 01 ff 00 ff 00 1d 27 01 00 01 00 01 1d 27 01 01 01 01 01 1d 27 01 02 01 02 01 1d 27 01 03 01 03 01 1d 27 01 04 01 04 01 1d 27 01 05 01 05 01 </pre>

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

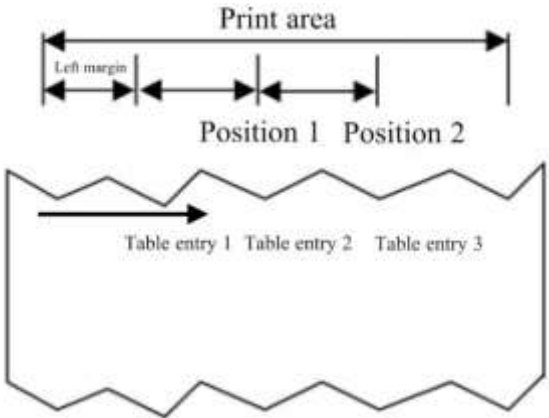
	1d 27 01 ca 00 cf 00 1d 27 01 d0 00 d4 00
	1d 27 01 d5 00 d8 00 1d 27 01 d9 00 dc 00
	1d 27 01 dd 00 df 00 1d 27 01 e0 00 e3 00
	1d 27 01 e4 00 e6 00 1d 27 01 e7 00 e9 00
	1d 27 01 ea 00 ec 00 1d 27 01 ed 00 ef 00
	1d 27 01 f0 00 f1 00 1d 27 01 f2 00 f3 00
	1d 27 01 f4 00 f5 00 1d 27 01 f6 00 f7 00
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

7.4 Tabulation commands

Horizontal tabulation

Name	Horizontal tabulation
Format	ASCII : HT Decimal : 9 Hex : 09
Description	Move the printing position to the next tab position
Range	
Default	
Support modal	All the printers
Note	Tab position is set by ESC D If the tab position is not set (the default is no horizontal tab position), this command will be regarded as an LF command If the tabulation position exceeds the printing area, the coordinates will move to the start position of the next line Line break)
For example	

Set the horizontal tab position

Name	Set the horizontal tab position
Format	ASCII : ESC D [d]k NUL Decimal : 27 68 [d]k 0 Hex : 1B 44 [d]k 00
Description	Set the horizontal tab position, the parameter meaning is as follows: d1 ... dk: horizontal tab position, with 8 points as the unit, NULL as the terminator
Range	XX58: $1 \leq d \leq 46$ ($d1 < d2 < \dots < dk$, $1 \leq k \leq 16$) XX80: $1 \leq d \leq 70$ ($d1 < d2 < \dots < dk$, $1 \leq k \leq 16$)
Default	[d]k = 0 (default no horizontal tab position)
Support modal	All the printers
Note	<p>The tabulation position is shown as follows:</p>  <p>Set tab positions d1 and d2</p>

	<ul style="list-style-type: none"> <input type="checkbox"/> It supports the setting of up to 16 tab positions. <input type="checkbox"/> Using this command will cancel the previous tabulation position setting. <input type="checkbox"/> k is used for indication purposes and does not need to be transmitted. <input type="checkbox"/> When the transmission [d]k encounters NULL, it is regarded as the end. <input type="checkbox"/> If dk is less than or equal to dk-1, it is regarded as the end, and the remaining data is regarded as normal data processing. <input type="checkbox"/> The tab position can be switched by HT. <input type="checkbox"/> When the left margin is changed, the tab position is changed at the same time. <input type="checkbox"/> After ESC @, printer reset, and power off, the setting of this command becomes invalid.
For example	1B 44 18 1E 00 46 4F 4F 44 09 50 52 49 43 45 09 49 44 0D0A0D0A 1B 44 18 1E 00 44 45 43 41 46 31 36 09 33 30 09 31 0D0A



7.5 One-dimensional barcode printing commands

Set the printing position of one-dimensional bar code readable characters (HRI)



Name	Set the printing position of one-dimensional bar code readable characters (HRI)	
Format	ASCII : GS H n Decimal : 29 72 n Hex : 1D 48 n	
Description	Set the barcode readable character (HRI) printing position, the meaning of the n parameter is as follows:	
	n	Print position
	0,48	Don't print
	1,49	Above the barcode
	2,50	Below the barcode
	3,51	Above and below the barcode
Range	0 ≤ n ≤ 3 or 48 ≤ n ≤ 51	
Default	n = 0	
Support modal	All the printers	
Note	When ESC @, printer reset, power off, the setting of this command is invalid	
For example		

Set the height of one-dimensional barcode

Name	Set the height of one-dimensional barcode
Format	ASCII : GS h n Decimal : 29 104 n Hex : 1D 68 n

Description	<p>Set the height of the bar code to n points, and the meaning of parameter n is as follows: Height is 50 and 100</p>  Height is 50  Height is 100
Range	$1 \leq n \leq 255$
Default	$n = 64$
Support modal	All the printers
Note	When ESC @, printer reset, power off, the setting of this command is invalid
For example	

Set the width of one-dimensional barcode

Name	Set the height of one-dimensional barcode
Format	ASCII : GS w n Decimal : 29 119 n Hex : 1D 77 n
Description	<p>Set the bar code unit to n points, and the meaning of parameter n is as follows:</p>  Width is 3  Width is 4
Range	$1 \leq n \leq 6$
Default	$n = 2$
Support modal	All the printers
Note	When ESC @, printer reset, power off, the setting of this command is invalid
For example	

Print one-dimensional barcode

Name	Print one-dimensional barcode
Format	<p>(A) ASCII : GS k m [d]k NUL Decimal : 29 107 m [d]k NUL Hex : 1D 6B m [d]k NUL</p> <p>(B) ASCII : GS k m n [d]k Decimal : 29 107 m n [d]k Hex : 1D 6B m n [d]k</p>
Description	To print a one-dimensional barcode, the meaning of each parameter is as follows:

m is the encoding method.

n is the coded data length, only used in (B) mode. The difference between (A) and (B) instructions is that the data segment of (A) ends with a NULL character, while (B) indicates the length of the data.

[d]k is barcode data.

k is the length of the barcode data, used for indication, without transmission. 各
The relationship between the parameters is shown in the following table:

(Command A)

m	Coding system	Barcode data (SP means space)			
		Data length	k	character set	Data (d)
0	UPC-A	fixed	k = 11, 12	0~9	$48 \leq d \leq 57$
1	UPC-E	fixed	$6 \leq k \leq 8$, k = 11, 12	0~9	$48 \leq d \leq 57$ [When k = 7, 8, 11, 12, d1 = 48]
2	JAN13 (EAN13)	fixed	k = 12, 13	0~9	$48 \leq d \leq 57$
3	JAN8 (EAN8)	fixed	k = 7, 8	0~9	$48 \leq d \leq 57$
4	CODE39	variable	$1 \leq k \leq 255$	0~9, A~Z SP, \$, %, +, -, ., /	$48 \leq d \leq 57$, $65 \leq d \leq 90$, d = 32, 36, 37, 42, 43, 45, 46, 47
5	ITF (Interleaved 2 of 5)	variable	$2 \leq k \leq 255$ (even)	0~9	$48 \leq d \leq 57$
6	CODABAR (NW-7)	variable	$1 \leq k$	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 ($65 \leq d1 \leq 68$, $65 \leq dk \leq 68$, $97 \leq d1 \leq 100$, $97 \leq dk \leq 100$)

(Command B)

m	Coding system	Barcode data (SP means space)			
		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	$6 \leq n \leq 8$,	0~9	$48 \leq d \leq 57$

				$n = 11, 12$		[When $n = 7, 8, 11, 12$, $d1 = 48$]
	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	variable	$1 \leq n \leq 255$	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)	variable	$1 \leq n \leq 255$ (even)	0~9	$48 \leq d \leq 57$
	71	CODABAR (NW-7)	variable	$1 \leq n \leq 255$	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 ($65 \leq d1 \leq 68$, $65 \leq dk \leq 68$, $97 \leq d1 \leq 100$, $97 \leq dk \leq 100$)
	72	CODE93	variable	$1 \leq n \leq 255$	00H~7FH	$0 \leq d \leq 127$
	73	CODE128	variable	$2 \leq n \leq 255$	00H~7FH	$0 \leq d \leq 127$
	74	UCC/EAN128	variable	$2 \leq n \leq 255$	00H~7FH C1H~C4H(FNC)	$0 \leq d \leq 127$ $d = 193$, 194, 195, 196
Range	(A) $0 \leq m \leq 6$ (B) $65 \leq m \leq 74$					
Default						
Support modal	All the printers					
Note	<p><input type="checkbox"/> If the barcode width exceeds the printable area, the printer will not perform barcode printing.</p> <p><input type="checkbox"/> When this command is executed, the paper is fed as needed, and it is not affected by the ESC 2, ESC 3 line spacing setting or the line spacing setting.</p> <p><input type="checkbox"/> This command is not affected by ESC! Character style settings affect.</p> <p><input type="checkbox"/> After this command is executed, the printing position will be restored to the printing start position.</p> <p><input type="checkbox"/> m parameters 0 ~ 6 (A) and 65 ~ 71 (B) select the same encoding system, and the printing effect is the same.</p>					

- ☐ When m parameter 0 ~ 6 (A), the barcode data ends with NULL.
- ☐ When m parameter 65 ~ 74 (B), the barcode data uses n to indicate the data length.
- ☐ k is used for indication and does not need to be transmitted.

When printing UPCA (m = 0 or 65), you need to pay attention to:

- Regardless of whether the length of the input data is 11 or 12, the check digit is automatically inserted or corrected.
- The start character, middle separator, and end character are automatically inserted.

When printing UPCE (m = 1 or 66), you need to pay attention to:

- When the data length is 6, the system character (NSC) 0 is automatically inserted.
- When the data length is 7, 8, 11 and 12, the first system character (NSC) d1 must be 0.
- Regardless of whether the length of the input data is 6, 7, 8, 11 or 12, the check digit is automatically inserted or corrected.
- Regardless of whether the input data length is 6, 7, 8, 11 or 12, the barcode readable character (HRI) only displays 6 digits of data, excluding system characters (NSC) and check codes;

The conversion relationship between transmission data and print data is as follows:

Transmission data											Encoding 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, it should be ensured that d7, d8, d9, d10 are 0, d11 is 5~9, and the start character and end character are automatically inserted.
- ☐ When printing EAN13 (m = 2 or 67), you need to pay attention to:
 - Regardless of whether the input data length is 12 or 13, the check digit is automatically inserted or corrected;
 - Start character, middle separator, and end character are automatically inserted.
- ☐ When printing EAN8 (m = 3 or 68), you need to pay attention to:
 - Regardless of whether the length of the input data is 7 or 8, the check digit is automatically inserted or corrected,
 - The start character, middle separator, and end character are automatically inserted.
- ☐ When printing CODE39 (m = 4 or 69), you need to pay attention to:
 - When d1 or dn is not the start character/end character "*", the encoder will

automatically insert "*"

- When "*" is encountered in the data, the encoder will treat it as a terminator, and the rest of the data will be treated as normal data processing;
- The check digit will not be automatically calculated and added.

☐ When printing ITF25 (m = 5 or 70), you need to pay attention to:

- Start and end characters are automatically inserted
- The check digit will not be automatically calculated and added

☐ When printing CODABAR (NW-7) (m = 6 or 71), you need to pay attention to:

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

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

- Start and end characters are automatically inserted
- Two check codes are automatically calculated and inserted
- When setting bar code readable characters (HRI) to print, do not set any HRI characters that indicate the beginning/end
- When setting bar code readable characters (HRI) to print, the control characters will be replaced by spaces

☐ When CODE128 (m = 73) is selected:

- Refer to Appendix A, CODE 128 related information and character set.
- When using CODE 128, code according to the following instructions:
 - ①The character set (one of CODE A, CODE B and CODE C) must be selected before the barcode data.
 - ②The character set selection is completed by sending the character "{" in combination with another character; ASCII code character "{" is done by sending the character "{" twice in succession. Special characters Send data


ASCII code Hexadecimal code Decimal code

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

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

In this example, the printer first prints "No." with CODE B, and then prints the remaining numbers with CODE C:

GS k 73 10 123 66 78 111 46 123 67 12 34 56

	 <p>No. 123456</p> <p>CODE 128:</p> <p>1b 40 1d 48 02 1d 68 64 1d 77 03 1d 6b 49 0A 7B 42 4E 6F 2E 7B 43 0C 22 38</p> <ul style="list-style-type: none"> • If the character set selection is not at the forefront of the bar code data, the printer will stop processing this command and treat the remaining data as normal data. • If "{" and the character immediately following it are not the combination specified above, the printer stops processing this command and treats the remaining data as normal data. • If the characters received by the printer are not bar code character set data, the printer stops processing this command and treats the remaining data as normal data. • When the printer prints HRI characters, it does not print shift characters and character set selection data. • The HRI characters of function characters are not printed. • The HRI characters of control characters (<00>H to <1F>H and <7F>H) are not printed; <p><Others> Be sure to ensure the left and right gaps of the barcode. The gap varies depending on the type of barcode.</p>
For example	<p>1b 40 1d 48 02 1d 68 64 1d 77 01 30 0D 0A 1d 6b 00 30 31 32 33 34 35 36 37 38 39 31 00 31 0D 0A 1d 6b 01 30 31 32 33 34 35 36 37 38 39 31 00 32 0D 0A 1d 6b 02 30 31 32 33 34 35 36 37 38 39 31 32 00 33 0D 0A 1d 6b 03 30 31 32 33 34 35 36 37 00 34 0D 0A 1D 6B 04 30 31 32 41 42 20 24 25 2B 2D 2E 2F 00 35 0D 0A 1d 6b 05 30 31 32 33 34 35 36 37 38 39 31 32 00 36 0D 0A 1d 6b 06 2D 31 32 42 24 2B 2D 2E 00 1d 6b 06 43 31 32 33 34 35 36 34 38 39 00</p> <p>36 35 0D 0A 1d 6b 41 0c 31 32 33 34 35 36 37 38 39 30 31 32 36 36 0D 0A</p>

	1d 6b 42 0c 30 32 33 34 35 36 30 30 30 30 38 39 36 37 0D 0A 1d 6b 43 0c 30 32 33 34 35 36 30 30 30 30 38 39 36 38 0D 0A 1d 6b 44 08 30 32 33 34 35 36 30 30 36 39 20 20 4e 4f 20 24 25 2b 2d 2e 2f 31 32 33 34 35 36 30 30 0D 0A 1d 6b 45 11 4e 4f 20 24 25 2b 2d 2e 2f 31 32 33 34 35 36 30 30 37 30 20 20 20 30 32 33 34 35 36 30 30 C5 BC CA FD 0D 0A 1d 6b 46 09 30 31 32 33 34 35 36 30 30 37 31 0d 0a 1d 6b 47 05 32 33 34 35 36 37 32 0d 0a 1d 6b 48 0b 32 33 34 35 36 41 42 2e 2f 2b 2c 37 33 0d0a 1d 6b 49 0A 7B 42 4E 6F 2E 7B 43 0C 22 38 Code 128 : 1b 40 1d 48 02 1d 68 64 1d 77 03 37 33 0d0a 1d 6b 49 0A 7B 42 4E 6F 2E 7B 43 0C 22 38
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7.6 QR code printing commands

Set the module type of QR code

Name	Set the module type of QR code
Format	ASCII : GS (k pL pH cn fn n Decimal : 29 40 107 pL pH cn fn n Hex : 1D 28 6b pL pH cn fn n
Description	Set the module type of QR code
Range	pL=3, pH=0 cn=49 fn=67 $0 \leq n \leq 16$
Default	n=3
Support modal	All the printers
Note	Set the type of QR code graphic module to [n points × n points].
For example	

Set the error correction level of the QR code

Name	Set the error correction level of the QR code
Format	ASCII : GS (k pL pH cn fn n Decimal : 29 40 107 pL pH cn fn n

	Hex : 1D 28 6b pL pH cn fn n		
Description	Set the error correction level of the QR code		
Range	pL=3, pH=0 cn=49 fn=69 $48 \leq n \leq 51$		
Default	n=48		
Support modal	All the printers		
Note	Set the error correction level of the QR code		
	n	Function	refer to: Approximate representative of recovery (%)
	48	Error correction level error L	7
	49	Error correction level error m	15
	50	Error correction level error q	25
	51	Error correction level error h	30
For example			

Store the QR code data in the QR code buffer

Name	Store the QR code data in the QR code buffer
Format	ASCII : GS (k pL pH cn fn m d1...dk Decimal : 29 40 107 pL pH cn fn m d1...dk Hex : 1D 28 6b pL pH cn fn m d1...dk
Description	Store the QR code data in the QR code buffer
Range	$4 \leq (pL + pH \times 256) \leq 7092$ ($0 \leq pL \leq 255, 0 \leq pH \leq 28$) cn=49 fn=80 m=48 $0 \leq d \leq 255$ $k = (pL + pH \times 256) - 3$
Default	
Support modal	All the printers
Note	Store the two-dimensional code data (d1...dk) into the two-dimensional code buffer. The bytes of $((pL + pH \times 256) - 3)$ are processed as graphics data after m(d1...dk).
For example	

Print QR code

Name	Print QR code
Format	ASCII : GS (k pL pH cn fn m Decimal : 29 40 107 pL pH cn fn m Hex : 1D 28 6b pL pH cn fn m
Description	Print QR code

Range	pL=3, pH=0 cn=49 fn=81 m=48
Default	
Support modal	All the printers
Note	Print the QR code. The user must consider the space of the QR code graphics (the top and bottom spacing and the left and right spacing of the QR code graphics are specified in the specifications).
For 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

Set the graphic information of the QR code

Name	Set the graphic information of the QR code																																												
Format	ASCII : GS (k pL pH cn fn m Decimal : 29 40 107 pL pH cn fn m Hex : 1D 28 6b pL pH cn fn m																																												
Description	Set the graphic information of the QR code The following are the specific details of the graphic information:																																												
	<table><tr><td>send data</td><td>Hex</td><td>Decimal</td><td>type of data</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>	send data	Hex	Decimal	type of data	Header	37H	55	1byte	Flag	36H	54	1byte	Width	30H-39H	48-57	1-5byte	Separator	1FH	31	1byte	Height	30H-39H	48-57	1-5byte	Separator	1FH	31	1byte	Fixed Value	31H	49	1byte	Separator	1FH	31	1byte	Other Information	30H or 31H	48 or 49	1byte	NUL	00H	0	1byte
	send data	Hex	Decimal	type of data																																									
	Header	37H	55	1byte																																									
	Flag	36H	54	1byte																																									
	Width	30H-39H	48-57	1-5byte																																									
	Separator	1FH	31	1byte																																									
	Height	30H-39H	48-57	1-5byte																																									
	Separator	1FH	31	1byte																																									
	Fixed Value	31H	49	1byte																																									
	Separator	1FH	31	1byte																																									
	Other Information	30H or 31H	48 or 49	1byte																																									
NUL	00H	0	1byte																																										
Width and height data sending:																																													
<input type="checkbox"/> The height and width values of the graphic data are in points.																																													
Other information data transmission:																																													
<input type="checkbox"/> "Hexadecimal=30H/Decimal=48" means that the data will not be printed.																																													
<input type="checkbox"/> "Hexadecimal=31H/Decimal=49" means that the data will not be printed.																																													

Range	pL=3, pH=0 cn=49 fn=82 m=48
Default	
Support modal	All the printers
Note	This command does not print QR code graphics. The user must consider the space of the QR code graphics (the top and bottom spacing and the left and right spacing of the QR code graphics are specified in the specifications).
For example	

Print QR code

Name	Print QR code
Format	ASCII : GS k m v r nL nH d1...dk Decimal : 29 107 97 v r nL nH d1...dk Hex : 1D 6B 61 v r nL nH d1...dk
Description	Print QR code □v indicates the specifications of the QR code, v=0 indicates that the specifications of the QR code are automatically selected. □□r means error correction level □□nL nH represents the data length □□d1...dk represents the QR code data to be printed
Range	$0 \leq v \leq 17$ $1 \leq r \leq 4$ $k = nL + 256 * nH$
Default	
Support modal	Mobile printer
Note	Print QR code
For example	1b 40 1D 6B 61 08 02 08 00 30 31 32 33 34 35 36 37

7.7 Status commands

Transmission status

Name	Transmission status				
Format	ASCII : GS r n Decimal : 29 114 n Hex : 1D 72 n				
Description	Transmit the status specified by n as follows: <table border="1"> <tr> <td>n</td><td>status</td></tr> <tr> <td>1.49</td><td>Transport paper sensor status</td></tr> </table>	n	status	1.49	Transport paper sensor status
n	status				
1.49	Transport paper sensor status				

Range	n = 1, 49																																			
Default																																				
Support modal	All the printers																																			
Note	<p>When using the serial interface:</p> <p>If DTR/DSR control is set, the printer will only transmit one byte after confirming that the host is ready to receive data (DSR signal is SPACE). If the host computer is not ready to receive and send data (DSR signal is MARK), the printer waits until the host is ready.</p> <p>If XON/XOFF control is set, the printer only transmits one byte and does not confirm the status of the DSR signal.</p> <p>□□Execute this command when data is generated in the print buffer. Therefore, there may be a time interval between receiving the command and transmitting the status, depending on the status of the receiving buffer.</p> <p>□□When GS a is used to activate the automatic status reply ASB, the status transmitted by GS r must be distinguished from the ASB status.</p> <p>□□The type of status transmitted is as follows:</p> <p>Paper sensor status (n = 1, 49):</p> <table><tr><th>Bit</th><th>Off/On</th><th>Hex</th><th>Decima l</th><th>ASB status</th></tr><tr><td>0,1</td><td>-</td><td>-</td><td>-</td><td>Meaningless</td></tr><tr><td rowspan="2">2,3</td><td>Off</td><td>00</td><td>0</td><td>Paper out sensor: enough printing paper</td></tr><tr><td>On</td><td>(0C)</td><td>(12)</td><td>The paper end sensor is out of paper</td></tr><tr><td>4</td><td>Off</td><td>00</td><td>0</td><td>Unused, fixed as 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>Unused, fixed as off</td></tr></table> <p>Bits 2 and 3: When the paper end sensor detects the paper end, the printer enters the offline state and the command is not executed. Therefore, bits 2 and 3 do not transmit the out of paper status.</p>		Bit	Off/On	Hex	Decima l	ASB status	0,1	-	-	-	Meaningless	2,3	Off	00	0	Paper out sensor: enough printing paper	On	(0C)	(12)	The paper end sensor is out of paper	4	Off	00	0	Unused, fixed as off	5,6	-	-	-	Undefined	7	Off	00	0	Unused, fixed as off
	Bit	Off/On	Hex	Decima l	ASB status																															
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4	Off	00	0	Unused, fixed as off																																
5,6	-	-	-	Undefined																																
7	Off	00	0	Unused, fixed as off																																
For example																																				

Real-time transmission status

Name	Real-time transmission status
Format	ASCII : DLE EOT n Decimal : 16 4 n Hex : 10 04 n
Description	<p>According to the following parameters, the printer status is transmitted in real time, and the parameter n is used to specify the printer status to be transmitted:</p> <p>n = 1: Send printer status</p> <p>n = 2: Send offline status</p>

	n = 3: Transmission error status n = 4: Transport paper sensor status																																																				
Range	1 ≤ n ≤ 4																																																				
Default																																																					
Support modal	All the printers																																																				
Note	<ul style="list-style-type: none">• The printer returns to the relevant status immediately after receiving the command• Try not to insert this command in a command sequence of 2 or more bytes.• Even if the printer is disabled by the ESC = (select peripherals) command, the command is still valid.• The printer transmits the current status, and each status is represented by 1 byte of data.• When the printer transmits the status, it does not confirm whether the host has received it.• The printer executes the command immediately after receiving the command.• This command is only valid for serial printers. The printer will immediately execute the command when it receives it in any state																																																				
	n=1: Printer status																																																				
	<table><tr><th>Bit</th><th>0/1</th><th>Hex code</th><th>Decimal code</th><th>Function</th></tr><tr><td>0</td><td>0</td><td>00</td><td>0</td><td>Fixed at 0</td></tr><tr><td>1</td><td>1</td><td>02</td><td>2</td><td>Fixed at 1</td></tr><tr><td rowspan="2">2</td><td>0</td><td>00</td><td>0</td><td>One or two cash drawers open (For machines without a cash drawer, this bit is fixed to zero)</td></tr><tr><td>1</td><td>04</td><td>4</td><td>Both cash drawers are closed</td></tr><tr><td rowspan="2">3</td><td>0</td><td>00</td><td>0</td><td>Online</td></tr><tr><td>1</td><td>08</td><td>8</td><td>Offline</td></tr><tr><td>4</td><td>1</td><td>10</td><td>16</td><td>Fixed at 1</td></tr><tr><td>5,6</td><td></td><td>--</td><td>--</td><td>Undefined</td></tr><tr><td rowspan="2">7</td><td>0</td><td>00</td><td>00</td><td>The paper has been torn away</td></tr><tr><td>1</td><td>80</td><td>96</td><td>The paper is not torn away</td></tr></table>	Bit	0/1	Hex code	Decimal code	Function	0	0	00	0	Fixed at 0	1	1	02	2	Fixed at 1	2	0	00	0	One or two cash drawers open (For machines without a cash drawer, this bit is fixed to zero)	1	04	4	Both cash drawers are closed	3	0	00	0	Online	1	08	8	Offline	4	1	10	16	Fixed at 1	5,6		--	--	Undefined	7	0	00	00	The paper has been torn away	1	80	96	The paper is not torn away
	Bit	0/1	Hex code	Decimal code	Function																																																
	0	0	00	0	Fixed at 0																																																
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	2	0	00	0	One or two cash drawers open (For machines without a cash drawer, this bit is fixed to zero)																																																
		1	04	4	Both cash drawers are closed																																																
	3	0	00	0	Online																																																
		1	08	8	Offline																																																
	4	1	10	16	Fixed at 1																																																
	5,6		--	--	Undefined																																																
	7	0	00	00	The paper has been torn away																																																
		1	80	96	The paper is not torn away																																																
	n=2: Send offline status																																																				
<table><tr><th>Bit</th><th>0/1</th><th>Hex code</th><th>Decimal code</th><th>Function</th></tr><tr><td>0</td><td>0</td><td>00</td><td>0</td><td>Fixed at 0</td></tr><tr><td>1</td><td>1</td><td>02</td><td>2</td><td>Fixed at 1</td></tr><tr><td rowspan="2">2</td><td>0</td><td>00</td><td>0</td><td>Cover closed</td></tr><tr><td>1</td><td>04</td><td>4</td><td>Cover open</td></tr><tr><td rowspan="2">3</td><td>0</td><td>00</td><td>0</td><td>The paper feed button is not pressed</td></tr><tr><td>1</td><td>08</td><td>8</td><td>Press the paper feed button</td></tr><tr><td>4</td><td>1</td><td>10</td><td>16</td><td>Fixed at 1</td></tr><tr><td rowspan="2">5</td><td>0</td><td>00</td><td>0</td><td>The printer is not out of paper</td></tr><tr><td>1</td><td>20</td><td>32</td><td>Printer is out of paper</td></tr></table>	Bit	0/1	Hex code	Decimal code	Function	0	0	00	0	Fixed at 0	1	1	02	2	Fixed at 1	2	0	00	0	Cover closed	1	04	4	Cover open	3	0	00	0	The paper feed button is not pressed	1	08	8	Press the paper feed button	4	1	10	16	Fixed at 1	5	0	00	0	The printer is not out of paper	1	20	32	Printer is out of paper						
Bit	0/1	Hex code	Decimal code	Function																																																	
0	0	00	0	Fixed at 0																																																	
1	1	02	2	Fixed at 1																																																	
2	0	00	0	Cover closed																																																	
	1	04	4	Cover open																																																	
3	0	00	0	The paper feed button is not pressed																																																	
	1	08	8	Press the paper feed button																																																	
4	1	10	16	Fixed at 1																																																	
5	0	00	0	The printer is not out of paper																																																	
	1	20	32	Printer is out of paper																																																	

	6	0	00	00	No error condition
		1	40	64	There is an error condition
	7	0	00	0	Fixed at 0
	n=3: Transmission error status				
	Bit	0/1	Hex code	Decimal code	Function
	0	0	00	0	Fixed at 0
	1	1	02	2	Fixed at 1
	2		--	--	Undefined
	3	0	00	0	Cutter without error
		1	08	8	Cutter is wrong
	4	1	10	16	Fixed at 1
	5	0	00	0	No unrecoverable errors
		1	20	32	Unrecoverable error
	6	0	00	00	打印头温度和电压正常
		1	40	64	打印头温度或电压超出范围
	7	0	00	0	Fixed at 0
	n=4: Transport paper sensor status				
	Bit	0/1	Hex code	Decimal code	Function
	0	0	00	0	Fixed at 0
	1	1	02	2	Fixed at 1
For example	2,	0	00	0	Have paper
	3	1	0C	12	Paper near end
	4	1	10	16	Fixed at 1
	5,	0	00	0	Have paper
	6	1	60	96	Out of paper
	7	0	00	0	Fixed at 0
	10 04 01				
	10 04 02				
	10 04 03				
	10 04 04				

Real-time print request

Name	Real-time print request	
Format	ASCII : DLE ENQ n	
	Decimal : 16 5 n	
	Hex : 10 05 n	
Description	The printer responds to the host's request, n Specify the following request:	
	n	request
	1	Recover from the error and restart printing from the line where

		the error occurred.
	2	Recover from the error after clearing the receiving and printing buffers.
Range	n = 1, 2	
Default		
Support modal	All the printers	
Note	<p>□□ This command is valid only when the automatic paper cutter error occurs and the cover open error occurs.</p> <p>□□ The printer starts processing data as soon as it receives this command.</p> <p>□□ Even if the printer is offline, the print buffer is full or a serial interface mode error occurs, this command is still executed.</p> <p>□□ In parallel interface mode, when the printer is busy, this command cannot be executed.</p> <p>□□ Whenever a data sequence of <10>H<05>H<n> ($1 \leq n \leq 2$) is received, the status will be sent.</p> <p>E.g: ESC * m nL nH dk , d1 = <10>H, d2 = <05>H, d3 = <01>H</p> <p>□□ In a data containing a command of 2 or more bytes, this command cannot be used.</p> <p>E.g: You want to send ESC 3n to the printer, but before n is sent, DTR (DSR for the host) will change to MARK, so before n is received, a DLE ENQ 2 interrupt occurs. DLE ENQ 2 code <10>H will be treated as ESC 3 code <10>H.</p> <p>□□ DLE ENQ 2 allows the printer to recover from the error state after clearing the data in the receiving buffer and printing buffer. The printer retains the settings that were in the valid state when the error occurred (such as ESC !, ESC3, etc..) This command and ESC @ can be used to completely initialize the printer. This command is only valid for errors that may be recovered, except for print head temperature errors.</p>	
For example	10 05 01	

Allow and prohibit automatic status reply (ASB)

Name	Allow and prohibit automatic status reply (ASB)				
Format	ASCII : GS a n Decimal : 29 97 n Hex : 1d 61 n				
Description	Allow or prohibit ASB and use n to specify the included status items, as shown below:				
	Bit	Off/On	Hex code	Decimal code	ASB status
	0	-	-	-	Undefined
	1	-	-	-	Undefined
	2	Off	00	0	Error status prohibited
On		04	4	Error status allowed	

	3	Off	00	0	Paper roll sensor status prohibited
		On	08	8	The status of the paper roll sensor allows
	4-7	-	-	-	Undefined
	The first byte (printer information):				
	Bit	Off/On	Hex code	Decimal code	ASB status
	0,1	Off	00	0	Not defined. It is fixed at 0
	2	On	04	0	Not defined. It is fixed at 1
	3	Off	00	0	Not defined. It is fixed at 0
	4	On	10	16	Not defined. It is fixed at 1
	5	Off	00	0	Not defined. It is fixed at 0
	6	Off	00	0	Failed to feed paper by pressing the paper feed key
		On	40	64	The paper is being fed by pressing the paper feed key
	7		00	0	Not defined. It is fixed at 0
	The second byte (printer information):				
	Bit	Off/On	Hex code	Decimal code	ASB status
	0-4	Off	00	0	Not defined. It is fixed at 0
	5	Off	00	0	No unrecoverable errors occurred
		On	20	32	An unrecoverable error occurred
	6	Off	00	0	No auto-recoverable error occurred
		On	40	64	Automatically recoverable errors occur
	7	Off	00	0	Not defined. It is fixed at 0.
	The third byte (paper sensor information):				
	Bit	Off/On	Hex code	Decimal code	ASB status
	0,1	Off	00	0	Not defined. It is fixed at 0.
	2,3	Off	00	0	The printer has paper
		On	0c	12	Printer is out of paper
	4-7	Off	00	0	Not defined. It is fixed at 0.
	The fourth byte (paper sensor information):				
	Bit	Off/On	Hex code	Decimal code	ASB status
	0-3	-	-	-	Not defined
	4-7	Off	00	0	Not defined. It is fixed at 0.
Range	0≤n≤255				
Default					
Support modal	All the printers				
Note	□□ If any of the status items in the above table is allowed, the printer will output				

	<p>the status when the command is executed. Once the "Allowed" status item is changed, the printer automatically transmits the status. Because each state transfer represents the current state, the prohibited state items can be changed.</p> <p><input type="checkbox"/><input type="checkbox"/> If all status items are disabled, then the ASB function is also disabled.</p> <p><input type="checkbox"/><input type="checkbox"/> If ASB is allowed as the default setting, the printer will transmit status when the printer can receive and transmit printer data for the first time when it is turned on.</p> <p><input type="checkbox"/><input type="checkbox"/> Transmit the following four status bytes without determining whether the host is ready to receive data. The four status bytes must be continuous, except for the XOFF code.</p> <p><input type="checkbox"/><input type="checkbox"/> Because the command data is executed after being processed in the receiving buffer, there may be a lag time between data reception and status transmission.</p> <p><input type="checkbox"/><input type="checkbox"/> When using DLE EOT, it is necessary to distinguish between the status transmitted by these commands and the ASB status.</p>
For example	1D 61 08

7.8 Label commands

Agreement

Name	Agreement
Format	[COMMAND]+[Parameter]
Description	<p>COMMAND: Command header, which identifies the function of the command, a hexadecimal number, indicated in bold blue, such as: 1A 54 00. Parameter: Command input parameter.</p> <p>Parameter definition:</p> <p>Single-byte parameters: A specific character represents a single byte, such as Rotate, which occupies one byte.</p> <p>Double-byte parameter: a combination of a specific character, _L and _H, indicates the low byte and high byte of the parameter in turn. For example, x_L, x_H indicate the low byte and high byte of the 2-byte parameter X in turn.</p> <p>Unit: point. 1 point = 0.125mm.</p> <p>Scope definition:</p> <p>x value range:{a, b} : x = a or x = b;</p> <p>[a, b] : $a \leq x \leq b$;</p> <p>(a, b) : $a < x < b$;</p>
Range	
Default	
Support modal	
Note	
For example	

Page control command

Page start command

Name	Page start command
Format	<p>Hex : a:</p> <p>1A 5B 00</p> <p>b:</p> <p>1A 5B 01 x_L x_H</p> <p>y_L y_H</p> <p>Width_L width_H</p> <p>Height_L Height_H</p> <p>Rotate</p>
Description	<p>Indicate the beginning of a Page page, and set the page page size, reference point coordinates and page rotation angle.</p> <p>Input parameter: None Return value: None</p> <p>Remarks: This command sets the page to be 576 points wide and 1200 points high, the reference point coordinate is the upper left corner of the current position, and the page does not rotate.</p> <p>b: Input parameters:</p> <p>x</p> <p>The x-axis offset of the page reference origin relative to the upper left corner of the current position of the label paper.</p> <p>y</p> <p>The y-axis offset of the page reference origin relative to the upper left corner of the current position of the label paper.</p> <p>Width</p> <p>Page width, the value range of x+Width is: [1,576].</p> <p>Height</p> <p>Page height, the value range of Height is: [1, 1200].</p> <p>Rotate</p> <p>Page rotation angle, the value range of Rotate is: {0,1}. When Rotate is 0, the page does not rotate. When Rotate is 1, the page is rotated 90° and printed.</p> <p>Return value: None.</p>
Range	
Default	
Support modal	
Note	
For example	1A 5B 01 00 00 00 00 80 01 40 01 00

Page end command

Name	Page end command
Format	Hex : 1A 5D 00
Description	Identifies the end of a Page page data. Input parameters: none. return value: none.
Range	
Default	
Support modal	
Note	
For example	

Page printing command

Name	Page printing command
Format	Hex : a: 1A 4F 00 b: 1A 4F 01 PrintNum
Description	Print the content on the Page on the label paper. a: Input parameters: none Return value: None Note: This command will only print the content of the page once. b: Input parameters: PrintNum Page content will be printed PrintNum times. return value: none.
Range	
Default	
Support modal	
Note	
For example	

Paper feed command

Name	Paper feed command
Format	<p>Hex : a:</p> <p>1A 0C 00</p> <p>b:</p> <p>1A 0C 01 StopPosition Offset_L Offset_H</p>
Description	<p>a;</p> <p>Input parameters: without. return value: without. Remark: After receiving this command, the printer feeds the paper, and when the label seam is flush with the cutting edge, it stops feeding. At this time, the current cursor position of the printer is 8mm below the label head</p> <p>b:</p> <p>Input parameters: StopPosition Mark the stop position mark of paper feeding, value range: {0, 3}.</p> <p>StopType = 0, Stop paper feeding at the level where the cutting edge is flush with the label seam;</p> <p>StopType = 1, Stop paper feeding at the place where the cursor is flush with the label head;</p> <p>StopType = 2, Stop paper feeding at the level where the cutting edge is flush with the black mark;</p> <p>StopType = 3, Stop paper feeding at the place where the cursor is flush with the black mark;</p> <p>Offset Mark the stop position offset. When the printer detects the label head or label, it continues to feed the length of each point of the Offset.</p> <p>return value: none.</p>
Range	
Default	
Support modal	
Note	
For example	1A 0C 01 00 00 01

Page drawing instructions

In the following commands, the reference origin of all coordinate points is the reference point defined in the start instruction of the Page page. Commands Page_Width and Page_Height respectively represent the width and height of the page defined in.

Text drawing command

Name	Text drawing command
Format	<p>Hex : a.</p> <p>1A 54 00 x_L x_H y_L y_H String00</p> <p>b :</p> <p>1A 54 01 x_L x_H y_L y_H FontHeight_L FontHeight_H FontType_L FontType_H String00</p>
Description	<p>a.</p> <p>Input parameters:</p> <p>x Define the x coordinate of the starting position of the text, the value range: [0, Page_Width-1];</p> <p>y Define the y coordinate of the starting position of the text, the value range: [0, Page_Height-1];</p> <p>String00 To be printed, a text string data stream terminated with 0x00.</p> <p>return value: None</p> <p>Note: When the sum of the text width and the text starting coordinate x is greater than the page width, the text will be cut off and printed.</p> <p>b.</p> <p>Input parameters:</p> <p>X Define the x coordinate of the starting position of the text, the value range: [0, Page_Width-1];</p> <p>y Define the y coordinate of the starting position of the text, the value range: [0, Page_Height-1];</p>

	FontHeight																		
	The font height of the text character. The valid range is {16, 24, 32, 48, 64, 80, 96}.																		
	FontType																		
	The text character effects are defined as follows:																		
	<table><tr><td>Data bit</td><td>definition</td></tr><tr><td>0</td><td>Bold flag: Set to 1 to make the font bold, and to clear it to not make the font bold.</td></tr><tr><td>1</td><td>Underline flag: set to 1, the text is underlined, and cleared to have no underline.</td></tr><tr><td>2</td><td>Anti-white flag: set 1 to reverse the text (white characters on a black background), clear to no white.</td></tr><tr><td>3</td><td>Strikethrough flag bit: Set to 1 the text has a strikethrough, cleared to have no strikethrough.</td></tr><tr><td>[5,4]</td><td>Rotation flag: 00 rotates 0° ; 01 rotates 90° ; 10 rotates 180° ; 11 rotates 270° . (When you need to rotate, you need to pay attention to the starting point coordinates)</td></tr><tr><td>[11,8]</td><td>Font width magnification;</td></tr><tr><td>[15,12]</td><td>Font height magnification;</td></tr><tr><td>]</td><td></td></tr></table>	Data bit	definition	0	Bold flag: Set to 1 to make the font bold, and to clear it to not make the font bold.	1	Underline flag: set to 1, the text is underlined, and cleared to have no underline.	2	Anti-white flag: set 1 to reverse the text (white characters on a black background), clear to no white.	3	Strikethrough flag bit: Set to 1 the text has a strikethrough, cleared to have no strikethrough.	[5,4]	Rotation flag: 00 rotates 0° ; 01 rotates 90° ; 10 rotates 180° ; 11 rotates 270° . (When you need to rotate, you need to pay attention to the starting point coordinates)	[11,8]	Font width magnification;	[15,12]	Font height magnification;]	
	Data bit	definition																	
	0	Bold flag: Set to 1 to make the font bold, and to clear it to not make the font bold.																	
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[5,4]	Rotation flag: 00 rotates 0° ; 01 rotates 90° ; 10 rotates 180° ; 11 rotates 270° . (When you need to rotate, you need to pay attention to the starting point coordinates)																		
[11,8]	Font width magnification;																		
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Return value: None.																			
Remark:																			
When the sum of the text width and the text starting coordinate x is greater than the page width, the text is cut off and printed.																			
Range																			
Default																			
Support modal																			
Note																			
For example	<p>A:</p> <p>1B 40 1a 5B 01 00 00 00 00 80 01 40 01 00</p> <p>1A 54 00 00 00 00 00 B0 AE CE D2 D6 D0 BB AA 00</p> <p>1a 5d 00</p> <p>1a 4f 00</p> <p>B:</p> <p>1a 5B 01 00 00 00 00 80 01 00 01 00</p> <p>1A 54 01</p> <p>00 00</p>																		

	00 00
	60 00 00 00
	C4E3BAC3 00
	1A 54 01
	18 00
	00 00
	60 00 00 00
	C4E3BAC3 00
	1A 54 01
	a0 00
	00 00
	60 00 10 33
	C4E3BAC3 00
	1a 5d 00
	1a 4f 00

Line drawing command

Name	Line drawing command
Format	<p>Hex : a.</p> <p>1A 5C 00 StartX_L StartX_H StartY_L StartY_H EndX_L EndX_H EndY_L EndY_L</p> <p>b.</p> <p>1A 5C 01 StartX_L StartX_H StartY_L StartY_H EndX_L EndX_H EndY_L EndY_H Width_L Width_H Color</p>
Description	<p>Draw a straight line segment between two specified points on the Page.</p> <p>a.</p> <p>Input parameters:</p> <p>StartX The x coordinate value of the starting point of the straight line segment, the value range: [0, Page_Width-1].</p> <p>StartY The y coordinate value of the starting point of the straight line segment, the value range: [0, Page_Height-1].</p> <p>EndX The x coordinate value of the end point of the straight line segment, the value</p>

	<p>range: [0, Page_Width-1].</p> <p>EndY</p> <p>The y coordinate value of the end point of the straight line segment, the value range: [0,Page_Height-1].</p> <p>return value:</p> <p>none.</p> <p>b.</p> <p>Input parameters:</p> <p>StartX</p> <p>The x coordinate value of the starting point of the straight line segment, the value range: [0, Page_Width-1].</p> <p>StartY</p> <p>The y coordinate value of the starting point of the straight line segment, the value range: [0, Page_Height-1].</p> <p>EndX</p> <p>The x coordinate value of the end point of the straight line segment, the value range: [0, Page_Width-1]</p> <p>EndY</p> <p>The y coordinate value of the end point of the straight line segment, the value range: [0,Page_Height-1].</p> <p>Width</p> <p>Line width of straight line segment, value range: [1, Page_Height-1].</p> <p>Color</p> <p>The color of the straight line segment, the value range: {0, 1}. When Color is 1, the line segment is black. When Color is 0, the line segment is white.</p> <p>Output parameters:</p> <p>none.</p>
Range	
Default	
Support modal	
Note	
For example	<pre>1B 40 1a 5B 01 00 00 00 00 80 01 40 01 00 1A 5C 01 00 00 00 00 00 01 00 00 30 00 01 1a 4f 00</pre>

Use line segment command to draw a rectangular box

```
1B 40 1a 5B 01 00 00 00 00 80 01 00 01 00
```

```
1A 5C 01 10 00 10 00 00 01 10 00 04 00 01
```

```
1A 5C 01 10 00 10 00 10 00 c0 00 04 00 01
```

```
1A 5C 01 10 00 c0 00 00 01 c0 00 04 00 01
```

```
1A 5C 01 00 01 10 00 00 01 c0 00 04 00 01
```

```
1a 4f 00
```

Rectangular frame drawing command

Name	Rectangular frame drawing command
Format	<p>Hex : a.</p> <p>1A 26 00 Left_L Left_H Top_L Top_H Right_L Right_H Bottom_L Bottom_H</p> <p>b.</p> <p>1A 26 01 Left_L Left_H Top_L Top_H Right_L Right_H Bottom_L Bottom_H Width_L Width_H Color</p>
Description	<p>Draw a rectangle of the specified size at the specified position on the Page.</p> <p>a.</p> <p>Input parameters:</p> <p>Left The x coordinate value of the upper left corner of the rectangular box, the value range: [0, Page_Width-1].</p> <p>Top The y coordinate value of the upper left corner of the rectangular box. Value range: [0, Page_Height-1].</p> <p>Right The x coordinate value of the lower right corner of the rectangular box. Value range: [0, Page_Width-1].</p> <p>Bottom The y coordinate value of the lower right corner of the rectangular box. Value range: [0, Page_Height-1].</p> <p>return value:</p> <p>none.</p> <p>b.</p> <p>Input parameters:</p> <p>Left The x coordinate value of the upper left corner of the rectangular box, the value range: [0, Page_Width-1].</p> <p>Top The y coordinate value of the upper left corner of the rectangular box. Value range: [0, Page_Height-1].</p> <p>Right The x coordinate value of the lower right corner of the rectangular box. Value</p>

	range: [0, Page_Width-1]. Bottom The y coordinate value of the lower right corner of the rectangular box. Value range: [0, Page_Height-1]. Width The width of the rectangular frame. Color The color of the rectangle frame line, the straight range is {0, 1}. When Color = 1, draw a black rectangle wide, when Color = 0, draw a white rectangle. Return parameter: none
Range	
Default	
Support modal	
Note	
For example	1a 5B 01 00 00 00 00 80 01 40 01 00 1a 26 01 10 00 10 00 00 01 00 01 10 00 01 1a 4f 00

1B 40 1a 5B 01 00 00 00 00 80 01 40 01 00
 1a 26 01 10 00 10 00 00 01 00 01 10 00 01
 1A 54 00 50 00 50 00 B0 AE CE D2 D6 D0 BB AA 0X00
 1a 4f 00

(draw a table)

1B 40 1a 5B 01 00 00 00 00 80 01 40 01 00
 1a 26 01 10 00 10 00 00 01 C0 00 04 00 01
 1A 5C 01 10 00 40 00 00 01 40 00 04 00 01
 1A 5C 01 10 00 80 00 00 01 80 00 04 00 01
 1A 5C 01 40 00 10 00 40 00 c0 00 04 00 01
 1A 54 00 50 00 50 00 B0 AE CE D2 D6 D0 BB AA 00
 1a 4f 00

Draw rectangle block command

Name	Draw rectangle block command
Format	Hex : 1A 2A 00 Left_L Left_H Top_L Top_H Right_L Right_H Bottom_L Bottom_H Color
Description	Draw a rectangular block at the specified position on the Page.

	<p>Input parameters:</p> <p>Left</p> <p>The x coordinate value of the upper left corner of the rectangular block, the value range: [0, Page_Width-1].</p> <p>Top</p> <p>The y coordinate value of the upper left corner of the rectangular block. Value range: [0, Page_Height-1].</p> <p>Right</p> <p>The x coordinate value of the lower right corner of the rectangular block. Value range: [0, Page_Width-1].</p> <p>Bottom</p> <p>The y coordinate value of the lower right corner of the rectangular block. Value range: [0, Page_Height-1].</p> <p>Color</p> <p>The color of the rectangular block, the value range: {0, 1}. When Color is 1, the rectangular block is black. When Color is 0</p> <p>When, the rectangular block is white.</p> <p>return value:</p> <p>none.</p>
Range	
Default	
Support modal	
Note	
For example	<p>1B 40 1a 5B 01 00 00 00 00 80 01 40 01 00</p> <p>1A 2A 00 00 00 00 00 60 00 60 00 01</p> <p>1a 4f 00</p>

One-dimensional barcode command

Name	One-dimensional barcode command
Format	<p>Hex :</p> <p>1A 30 00 x_L x_H</p> <p>y_L y_H</p> <p>BarcodeType</p> <p>BarcodeHeight</p> <p>UnitWidth</p> <p>Rotate</p> <p>String00</p>
Description	<p>Draw a one-dimensional bar code at the specified position on the Page page.</p> <p>Input parameters:</p> <p>x</p> <p>The x coordinate value of the upper left corner of the barcode, the value range: [0, Page_Width-1].</p>

y

The y coordinate value of the upper left corner of the barcode, the value range: [0, Page_Height-1].

BarcodeType

Identifies the barcode type, the value range: [0,29]. The values are defined as follows:

value	type	length	Barcode value range	Remark
0	UPC-A	11	48-57	
1	UPC-E	6	48-57	
2	EAN13	12	48-57	
3	EAN8	7	48-57	
4	CODE 39	1-39	48-57,65-90,32,36,37,43,45,46,47	
5	I25	1-	even 48-57	
6	CODA BAR	1-	48-57,65-68,36,43,45,46,47,58	
7	CODE 93	1-255	0-127	
8	CODE 128	2-255	0-127	
9	CODE 11			
10	MSI			
11	128M			The encoding mode can be switched according to the data -> !096-!105
12	EAN128			Switch encoding mode automatically
13	25C			25C Check use mod 10-> For odd numbers, add 0 in front, multiples of 10-[(sum of odd digits<from left to right)+(sum of even digits)*3]
14	39C			The check code of code 39 must be matched with the "check code relative value comparison table", as shown in the table, the relative value of the check is added up and then divided by 43, the remainder is obtained and

					the relative code character is found, which is the check code Characters.
	15	39			Full ASCII 39 Code, special characters are represented by two representable words, 39C also contains Full ASCII, pay attention to the aspect ratio processing
	16	EAN13 +2			The interval between the additional code and the main code is 7-12 units, the start is 1011, the interval is 01, $(_0*10+_1)$ Mod 4-> 0--AA 1--AB 2--BA 3--BB
	17	EAN13 +5			The additional code part is the same as above, mode $((_0+_2+_4)*3+(_1+_3)*9) \bmod 10 \rightarrow$ "bbaaa", "babaa", "baaba", "baaab", "abbaa", "aabba", "aaabb", "ababa", "abaab", "aabab"
	18	EAN8 +2			Same as EAN13+2
	19	EAN8 +5			Same as EAN13+5
	20	POST			Please refer to the specification for details, it is a high and low bar code, not a wide or narrow bar code
	21	UPCA +2			See EAN for additional codes
	22	UPCA +5			See EAN for additional codes
	23	UPCE +2			See EAN for additional codes
	24	UPCE +5			See EAN for additional codes
	25	CPOST			

	26	MSIC			Use the check code as data to calculate the check code again																													
	27	PLESSEY																																
	28	ITF14			25C variant, 0 is added before the first number, the last number needs to be deducted when the check code is calculated, but the last number is still filled in																													
	29	EAN14																																
	<p>BarcodeHeight :</p> <p>Define the height of the bar code.</p> <p>UnitWidth :</p> <p>Define the barcode width. Value range: [1, 4]. The values are defined as follows:</p> <table><tr><td>Width value</td><td>Multi-level barcode unit width (mm)</td><td>Narrow line width of binary bar code</td><td>Wide line width of binary bar code</td></tr><tr><td>1</td><td>0.125</td><td>0.125</td><td>0.25</td></tr><tr><td>2</td><td>0.25</td><td>0.25</td><td>0.50</td></tr><tr><td>3</td><td>0.375</td><td>0.375</td><td>0.75</td></tr><tr><td>4</td><td>0.50</td><td>0.50</td><td>1.0</td></tr></table> <p>Rotate:</p> <p>Indicates the rotation angle of the barcode. Value range: [0, 3]. The values are defined as follows:</p> <table><tr><td>Rotate value</td><td>definition</td></tr><tr><td>0</td><td>The barcode is drawn without rotation</td></tr><tr><td>1</td><td>The bar code is drawn by rotating 90°</td></tr><tr><td>2</td><td>The barcode is drawn by rotating 180°</td></tr><tr><td>3</td><td>The bar code is drawn by rotating 270°</td></tr></table> <p>String00:</p> <p>A data stream of text characters ending in 0x00.</p> <p>return value:</p> <p>none</p>					Width value	Multi-level barcode unit width (mm)	Narrow line width of binary bar code	Wide line width of binary bar code	1	0.125	0.125	0.25	2	0.25	0.25	0.50	3	0.375	0.375	0.75	4	0.50	0.50	1.0	Rotate value	definition	0	The barcode is drawn without rotation	1	The bar code is drawn by rotating 90°	2	The barcode is drawn by rotating 180°	3
Width value	Multi-level barcode unit width (mm)	Narrow line width of binary bar code	Wide line width of binary bar code																															
1	0.125	0.125	0.25																															
2	0.25	0.25	0.50																															
3	0.375	0.375	0.75																															
4	0.50	0.50	1.0																															
Rotate value	definition																																	
0	The barcode is drawn without rotation																																	
1	The bar code is drawn by rotating 90°																																	
2	The barcode is drawn by rotating 180°																																	
3	The bar code is drawn by rotating 270°																																	
Range																																		
Default																																		
Support modal																																		
Note																																		

For example	(2 inch label paper)
	1b 40
	1a 5B 01 00 00 00 00 80 01 00 01 00
	1a 30 00
	20 00
	40 00
	0f
	55
	02
	00
	31 30 31 30 30 00
	1a 5d 00
	1a 4f 00

QRCode barcode command

Name	QRCode barcode command	
Format	Hex: 1A 31 00 version ECC x_L x_H y_L y_H UnitWidth Rotate String00	
Description	Input parameters: version Specify the character version. Value range: [0,20]. When the version is 0, the printer according to the length of the string Automatically calculate the version number. ECC Specify the error correction level. Value range: [1, 4]. The values are defined as follows:	
	ECC	Error correction level
	1	L: 7%, low error correction, and more data
	2	M: 15%, medium error correction
	3	Q: Optimize error correction
	4	H: 30%, the highest error correction, less data
	The x coordinate value of the upper left corner of the QRCode code, the value range: [0, Page_Width-1]. y The y coordinate value of the upper left corner of the QRCode code, the value range: [0, Page_Height-1]. UnitWidth	

	<p>QRCode code block, value range: [1, 4]. The definition of each value is the same as the command input parameter UniWidth.</p> <p>Rotate</p> <p>QR Code rotation angle, value range: [0, 3]. The definition of each value is the same as the command input parameter Rotate.</p> <p>String00</p> <p>QRCode text character data stream terminated with 0x00.</p> <p>return value:</p> <p>none</p>
Range	
Default	
Support modal	
Note	
For example	<p>1B 40 1a 5B 01 00 00 00 00 80 01 40 01 00</p> <p>1A 31 00 03 03 60 00 20 00 04 00 B0 AE CE D2 D6 D0 BB AA 00</p> <p>1a 5d 00</p> <p>1a 4f 00</p>

PDF417 barcode command

Name	PDF417 barcode command
Format	<p>Hex : 1A 31 01 ColNum</p> <p>ECC</p> <p>LWRatio</p> <p>x_L x_H</p> <p>y_L y_H</p> <p>UnitWidth</p> <p>Rotate</p> <p>String00</p>
Description	<p>PDF417 bar code is drawn at the specified position of the word Page.</p> <p>Input parameters:</p> <p>ColNum</p> <p>Column is the number of columns, which means how many code words are contained in each row. One codeword is 17*UnitWidth points. The line number is automatically generated by the printer, and the line number range is limited to 3~90. The value range of ColNum: [1,30];</p> <p>ECC</p> <p>Error correction level, value range: [0. 8].</p> <p>The x coordinate value of the upper left corner of the PDF417 code, the value range: [0, Page_Width-1].</p> <p>y The y coordinate value of the upper left corner of the PDF417 code, the value range: [0, Page_Height-1].</p> <p>UnitWidth</p>

	<p>PDF417 code width, value range: [1, 3]. The definition of each value is the same as the command input parameter UniWidth.</p> <p>Rotate</p> <p>PDF417 code rotation angle, value range: [0, 3]. The definition of each value is the same as the command input parameter Rotate.</p> <p>String00</p> <p>PDF417 text character data stream terminated with 0x00.</p> <p>return value:</p> <p>none</p>
Range	
Default	
Support modal	
Note	
For example	<p>1B 40 1a 5B 01 00 00 00 00 80 01 40 01 00</p> <p>1A 31 01 10 02 02 50 00 20 00 03 00 B0 AE CE D2 D6 D0 BB AA 0X00</p> <p>1a 4f 00</p>

Bitmap command

Name	Bitmap command
Format	<p>Hex :</p> <p>a: 1A 21 00</p> <p>x_L x_H</p> <p>y_L y_H</p> <p>Width_L Width_H</p> <p>Height_L Height_L</p> <p>Data</p> <p>b:</p> <p>1A 21 01</p> <p>x_L x_H</p> <p>y_L y_H</p> <p>Width_L Width_H</p> <p>Height_L Height_L</p> <p>ShowType</p> <p>Data</p>
Description	<p>Draw a bitmap at the specified position on the Page.</p> <p>a :</p> <p>Input parameters:</p> <p>x</p>

	<p>The x coordinate value of the upper left corner of the bitmap, the value range: [0, Page_Width].</p> <p>y</p> <p>The y coordinate value of the upper left corner of the bitmap, the value range: [0, Page_Height].</p> <p>Width</p> <p>The pixel width of the bitmap.</p> <p>Height</p> <p>The pixel height of the bitmap.</p> <p>Data</p> <p>The dot matrix data of the bitmap.</p> <p>Return value: None.</p> <p>b :</p> <p>Input parameters:</p> <p>x</p> <p>The x coordinate value of the upper left corner of the bitmap, the value range: [0, Page_Width].</p> <p>y</p> <p>The y coordinate value of the upper left corner of the bitmap, the value range: [0, Page_Height].</p> <p>Width</p> <p>The pixel width of the bitmap.</p> <p>Height</p> <p>The pixel height of the bitmap.</p> <p>ShowType</p> <p>Bitmap printing special effects, the values of ShowType are defined as follows:</p> <table border="1"> <thead> <tr> <th>Bit</th><th>definition</th></tr> </thead> <tbody> <tr> <td>0</td><td>Reverse white flag bit, set 1 bit image reverse white printing, clear zero normal printing.</td></tr> <tr> <td>[2:1]</td><td>Rotation flag: 00 rotates 0° ; 01 rotates 90° ; 10 rotates 180° ; 11 rotates 270°</td></tr> <tr> <td>[7:3]</td><td>Reserve</td></tr> <tr> <td>[11:8]</td><td>The magnification of the width of the bitmap.</td></tr> <tr> <td>[15:12]</td><td>The height magnification of the bitmap.</td></tr> </tbody> </table> <p>Data</p> <p>The dot matrix data of the bitmap.</p> <p>Return value: None.</p>	Bit	definition	0	Reverse white flag bit, set 1 bit image reverse white printing, clear zero normal printing.	[2:1]	Rotation flag: 00 rotates 0° ; 01 rotates 90° ; 10 rotates 180° ; 11 rotates 270°	[7:3]	Reserve	[11:8]	The magnification of the width of the bitmap.	[15:12]	The height magnification of the bitmap.
Bit	definition												
0	Reverse white flag bit, set 1 bit image reverse white printing, clear zero normal printing.												
[2:1]	Rotation flag: 00 rotates 0° ; 01 rotates 90° ; 10 rotates 180° ; 11 rotates 270°												
[7:3]	Reserve												
[11:8]	The magnification of the width of the bitmap.												
[15:12]	The height magnification of the bitmap.												
Range													
Default													
Support modal													
Note													
For example	1a 5B 01 00 00 00 00 80 01 40 01 00												

	1a 21 01 40 00 40 00 18 00 18 00 07 22 0820800E38E00C30C80C34FC0DFF980E31102D32242DFDFE2CB58C6CB5 8C6CB5AC4CB5AC0CFDAC0C31AC0C71AC0C71AC0CB9AC0CB5280D34 400E30580C308C0C31060C3204082400 1A 5D 00 1a 4f 00
--	--

7.9 Other commands

Initialize printer

Name	Initialize printer
Format	ASCII : ESC @ Decimal : 27 64 Hex : 1B 40
Description	Initialize the printer with the following: Clear print cache Restore the default value of each parameter
Range	
Default	
Support modal	All the printers
Note	
For example	

Print the self-test page

Name	Print the self-test page
Format	ASCII : DC2 T Decimal : 18 94 Hex : 12 54
Description	The printer prints a self-test page, which contains the printer's program version, communication interface type, code page and some other data
Range	
Default	
Support modal	All the printers
Note	
For example	1B 40 12 54

Set print density

Name	Set print density
Format	ASCII : ESC 7 n1 n2 n3 Decimal : 27 55 n1 n2 n3 Hex : 1B 37 n1 n2 n3

Description	<p>Set the maximum heating points for printing, heating time, interval time:</p> <ul style="list-style-type: none"> <input type="checkbox"/> n1 = 0-255 The maximum number of heating points, the unit (8dots), the default value is 9 (80 points); <input type="checkbox"/> n2 = 0-255 heating time, unit (10us), default value 80; <input type="checkbox"/> n3 = 0-255 heating interval time, unit (10us), default value 2; <input type="checkbox"/> If the number of heating points is large, the maximum power consumption current of the control board is large, and the printing speed is fast. The maximum number of heating points is $8 \times (n1 + 1)$; <input type="checkbox"/> The longer the heating time, the higher the printing darkness and the slower the printing speed. If the heating time is too short, there may be blank printing; <input type="checkbox"/> The longer the interval, the clearer the printing and the slower the printing speed;
Range	
Default	
Support modal	All the printers
Note	The "heating time" and "heating interval" control panel will automatically adjust according to the input voltage.
For example	<p>Heating points: 80 points, heating time: 800us, interval time 200us.</p> <p>1B 40 1B 37 09 50 02 12 54</p> <p>Heating points: 80 points, heating time: 1600us, interval time 200us.</p> <p>1B 40 1B 37 09 A0 02 12 54</p> <p>It can be seen that after the heating time is prolonged, the printing density becomes obviously black.</p>

Generate cash drawer pulse (OnlyForDrawer)

Name	Generate cash drawer pulse		
Format	<p>ASCII : ESC p m t1 t2</p> <p>Decimal : 27 112 m t1 t2</p> <p>Hex : 1B 70 m t1 t2</p>		
Description	Output pulse (pulse is specified by t1 and t2) to the pin specified by m		
Range	<p>m=0,1,48,49</p> <p>$0 \leq t1 \leq 255$</p> <p>$0 \leq t2 \leq 255$</p>		
Default			
Support modal	All the printers		
Note	<p>1. The cash drawer pin is designated by m</p> <table border="1"> <tr> <td>m</td><td>Function</td></tr> </table>	m	Function
m	Function		

		0,48	Cash drawer open/close signal (connect to pin 2)
		1,49	Cash drawer open/close signal (connect to pin 5)
	2. When the cash drawer is opened, it is $[t1 \times 2ms]$, and when it is closed, it is $[t2 \times 2ms]$. 3. If $t2 < t1$, it will be $[t1 \times 2ms]$ when closed.		
For example	1B 40 1B 70 00 60 60 1B 70 01 60 60		