

58MM thermal printer

Programming Manual

format description

The command descriptions in this programming manual include the following sections:

1) Command name and function overview.

This is the first part of the command description. A command in ASCII code and an overview of the command's function are given.

2) Format.

This part uses ASCII code, hexadecimal code, and decimal code to describe the command. The value range part is a decimal number unless otherwise specified, such as 0 ÷ n ÷ 255 in the following example, where 1 is 1 in decimal, not "1" in the ASCII code table.

3) Scope. The scope of the variable is given.

4) Description. A detailed explanation of the command is given.

5) Notes. Notes for the command are given. Since the command is in different modes, when it is matched with different commands, it will be possible to can lead to interactions, and this section gives those details.

6) Reference. Other similar commands related to this command are given.

---> ESC SP n real-time status transmission

---> [Format] ASCII code ESC SP n

hex code 1B 20 n

Decimal code 27 32 n

---> [range] 0 ÷ n ÷ 255

---> [Description] Real-time transmission of the printer status specified by parameter n:

---> [Note] • The printer returns to the relevant status immediately after receiving the command

---> [Reference]

HT

[name]	Horizontal positioning
[format]	ASCII code HT hex code 09 Decimal code 09
[description] [note]	Moves the print position to the position of the next horizontal anchor point. <ul style="list-style-type: none">• If the position of the next horizontal anchor point is not set, this command is ignored.• If the position of the next horizontal anchor point is outside the print area, the print position moves to the "Print Area " Width +1".• Set the position of the horizontal anchor point by the ESCD command.• When the print position is at "print area width + 1", when this command is received, the printer executes the print buffer full print The current line is printed, and horizontal positioning is processed at the beginning of the next line.
[reference]	ESC D

LF

[name] print and wrap	
[Format] ASCII code	LF
hex code 0A	
decimal code	10
[Description]	Print the data in the print buffer, and advance the printing paper by one line according to the current line spacing.
[Note]	This command sets the print position to the beginning of the line.
[Reference]	ESC 2, ESC 3

DLE DC4 n m t

[name] Pulse in real time	
[Format]	ASCII DLE DC4 n m t
Hex 10 Dec 16	14 n m t
n=1,m=0,1	20 n m t
[scope]	1ÿÿÿ 8

[Explanation] The output pulse is specified by the parameter t to connect the pin, m is as follows:

m	connection pin
0	Cash drawer connection pin 2
1	Cash drawer connection pin 5

[Note] The pulse high level time is [t*100ms], and the low level time is [t*100ms].

- When the printer is executing a cash drawer open command (ESC p or DEL DC 4), the command is ignored.
- In serial mode, the printer executes the command immediately after receiving it.
- In parallel port mode, this command will not be executed when the printer is busy.
- If the print data contains the same data as this command, these data will be treated as the command execution Row. Users must take this into account.
- Try not to insert this command in a command sequence of 2 or more bytes.
- Even if the printer is disabled by the ESC = (select peripheral) command, this command is still valid.

[reference]	ESC p
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ESC SP n

[name] Set right character spacing				
[Format]	ASCII code	ESC SP	Hexadecimal	n
	code 1B 20	Decimal code 27 32		n
				n
[Range] 0ÿñÿÿ255				
[Description] Set the spacing on the right side of the character to [n*0.125mm].				
[Notes] • For double-width mode, the right character spacing is double that of normal mode. When the characters are enlarged, the space between the characters on the right				
The distance is n times that of normal mode.				
• This command does not affect the setting of Chinese characters.				
• This command sets the value standard mode independently in each mode.				
[default] n=0				

ESC SO

[Name] Set the double-width mode of Chinese characters				
[Format]	ASCII code	ESC SO		
	hex code	1B 0E		
	Decimal code	27 14		
[Description] Chinese characters and characters set double width				

ESC DC4

[Name] Cancel the double-width mode of Chinese characters				
[Format]	ASCII code	ESC DC4		
	hex code	1B 14		
	Decimal code	27 20		
[Description] Cancel the double width of Chinese characters and characters				

ESC ! n

[Command] Select print mode				
[Format]	ASCII	ESC	!	n
	Hexadecimal 1B	Decimal	21	n
		27	33	n
[Range] 0ÿñÿÿ255				

[Description] Select the print mode by specifying the value of parameter n. The parameter n is defined as follows:

Bit off/on	hexadecimal code	decimal code	function	
0 off on		00	0	Character font A (12*24)
		01	1	Character font B (9*17)
1				undefined.
2				undefined.
3 off		00	0	Disable bold mode.
	open 08		8	Set bold mode.
4 levels		00	0	Disable double height mode.
	open	10	16	Set double height mode.
5 off		00	0	Disable double-width mode.
		20	32	Sets the double-width mode.
6				undefined.

7 off		00	0	Disable underline mode.
		80	128	Set the underline mode.

[Note] • When double-height and double-width modes are selected at the same time, quadruple-sized characters will be printed. • The printer can underline all characters, but not blanks or characters rotated 90° clockwise by the HT command.

• The thickness of the underline is set by ESC-, regardless of the character size. • When there are some double-height or higher characters in a line, all characters in the line are aligned along the baseline. • ESC M can also set the font type of the characters, and the setting of the last received command is valid. • ESC E can also set or cancel the bold mode, and the setting of the last received command is valid. • ESC - can also set or cancel the underline mode, the setting of the last received command is valid.

• GS ! The character size can also be set. The settings of the last received command are valid. • Bold mode is valid for both alphanumeric characters and Chinese characters. All print modes except bold mode are alphanumeric only character

is valid. [default] n=0 [reference]

ESC -,ESC E,GS !

ESC \$ nL nH [Name] Set

the absolute print position [Format]

ASCII code ESC \$ nL nH Hex code 1B 24 nL nH

Decimal code 27 36 nL nH [Range]

0≤nL≤255 0≤nH≤255 [Description]

Sets the distance from the beginning of a line to the position where characters will be printed.

[Note] • The distance from the beginning of a line to the print position is

[(nL+nH*256)*0.125mm]. • Settings outside the specified print area are ignored. • Use the horizontal motion unit (x) in standard mode.

[Reference] ESC \, GS \$, GS \

ESC %n [name]

select/cancel user-defined character set [format]

ASCII ESC % n Hexadecimal 1B 25

n Decimal 27 37 n

[Range] 0≤n≤255 [Description]

Select or cancel the user-defined character set. • When the least

significant bit of n is 0, cancel the user-defined character set. • When the least

significant bit of n is 1, select the user-defined character set. • When the user-

[Notice] defined character set is canceled, the internal character set is automatically selected. • n Only the least significant bit is useful. [default] n=0 [reference]

ESC &,ESC ?

ESC & y c1 c2 [x1 d1...d(yx1)] ... [xk d1...d(yxk)] [Name] Define user-defined character [Format] ASCII code

ESC & y c1 c2 [x1 d1...d(yx1)]...[xk d1...d(yxk)] hex code 1B 26 y c1 c2 [x1 d1...d(yx1)]...[xk d1...d(yxk)] Decimal 27 38 y c1 c2 [x1 d1...d(yx1)]...[xk d1...d(yxk)] [range] y=3

32 y c1 c2 256

0≤y≤12 (when font A(12×24) is set)

0ÿÿxÿ 9 (when font type B(9ÿ17) is set)

0ÿÿd1...d(ÿÿxk)ÿÿ255 [Description] Define user-defined characters. • y specifies the number of bytes in the vertical direction.

• c1 specifies the starting character encoding and c2 specifies the ending character encoding. • x specifies the number of points in the horizontal direction.

[Note] • The range of character codes that can be defined: ASCII codes (95 characters) from <20>H to <7E>H.

•Consecutive character encoding can be defined for multiple characters. When only one character is required, let c1 = c2. • d is the point data for the character. Dot mode starts horizontally from the left. The remaining dots on the right are blank. • The data defining the user-defined character is (ÿÿx) bytes. • Set the corresponding bit to print dots to 1 or not to print dots to 0.

•This command can define different user-defined character patterns for each font type. Use ESC! or ESCM

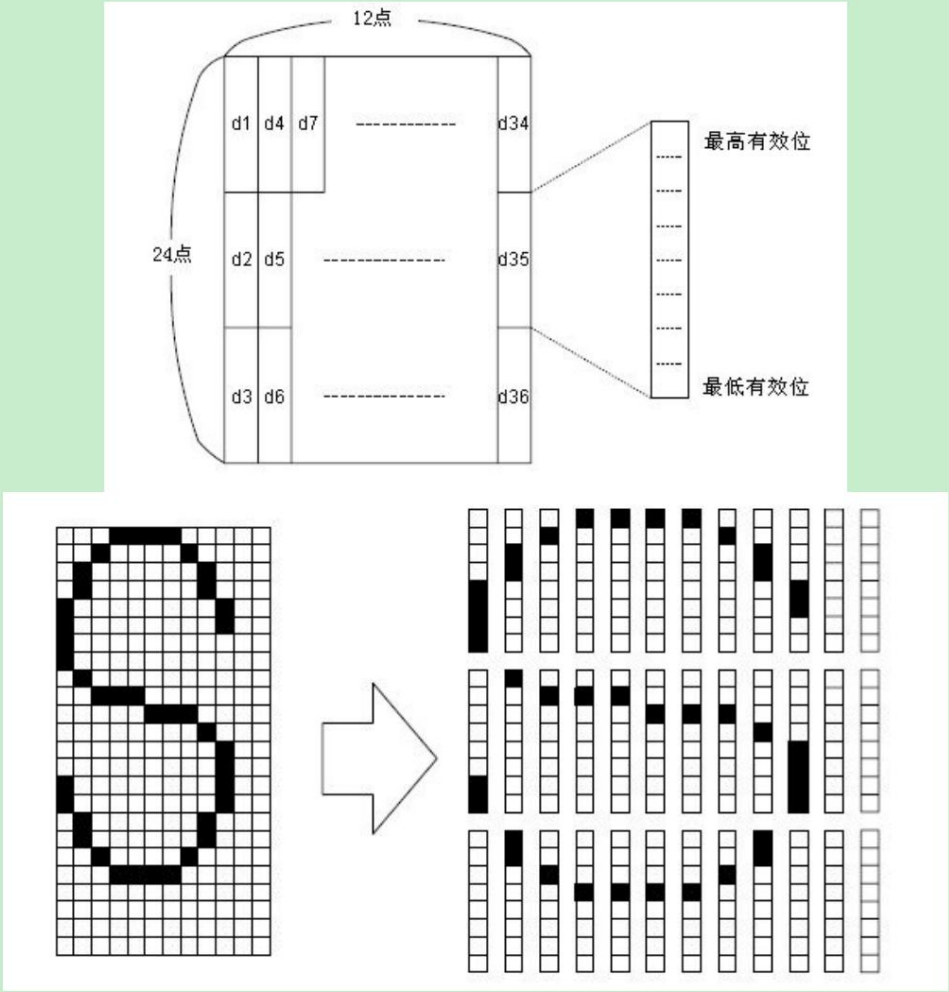
Set the font.

• User-defined characters and downloaded bitmap cannot be defined at the same time. When this command is executed, the downloaded bitmap is cleared remove.

• User-defined characters are cleared in the following cases: 1) ESC @ is executed. 2) Execute GS*. 3) Execute ESC ?. 4) Reset or power off the printer.

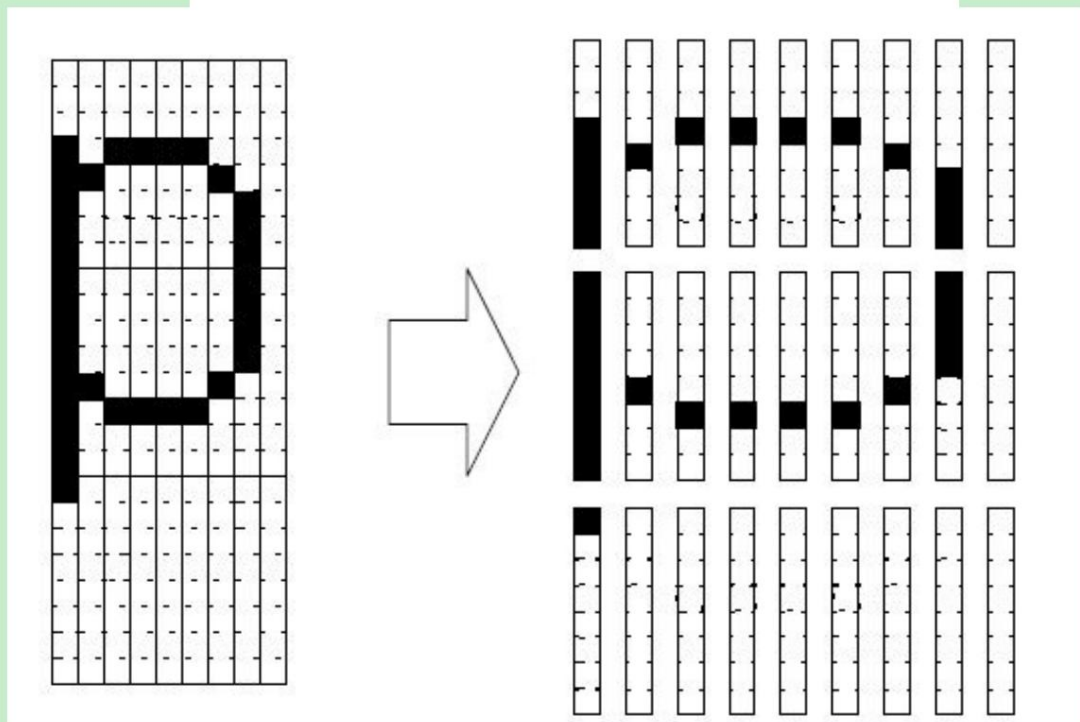
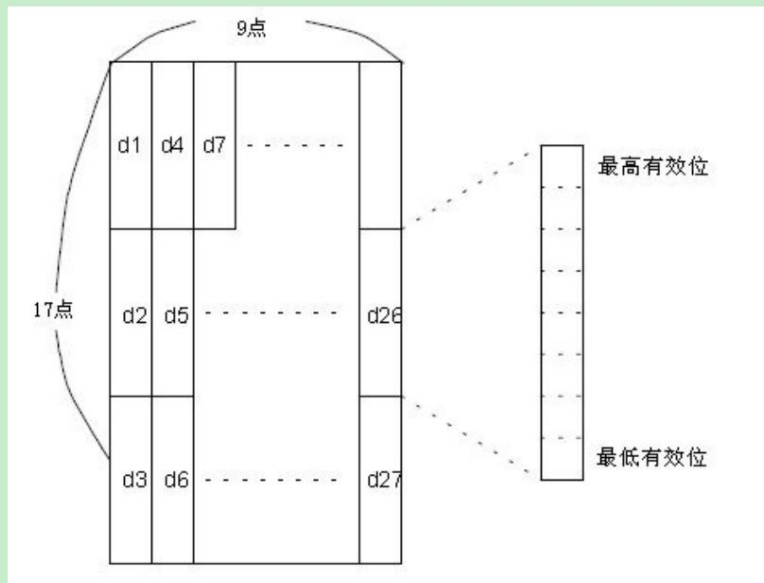
• When user-defined characters are defined in font B (9ÿ17), only the lowest value of the third byte of vertical data The valid bit is valid.

[Default] Internal character set [Reference] ESC % ,ESC ? [Example] •When setting font A (12*24).



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

•When font type B(9*17) is set.



d1=<1F>H d4= <08>H d7=<10>H...
 d2=<FF>H d5= <08>H d8=<04>H...
 d3=<80>H d6= <00>H d9=<00>H...

ESC * m nL nH d1...dk

[name] select bitmap mode

[Format] ASCII ESC yy m nL nH d1...dk

Hexadecimal 1B 2A m nL nH d1...dk

Decimal code 27 42 m nL nH d1...dk

[scope] m=0, 1, 32,33

0ÿÿnLÿÿ255
0ÿnHÿ 3
0ÿÿdÿ 255

[Description] Use m to select the mode of the bitmap, the number of points of the bitmap is specified by nL and nH, as follows:

m mode		Dot density		horizontal direction	
		in vertical direction		Number of dot density data (K)	
0 8-point single density 1		8	67.7dpi	101.6dpi nL + nHÿ256	
8-point double density 32		8	67.7dpi	203.2dpi nL + nHÿ256	
24-point single density 33		24	203.2dpi	101.6dpi (nL + nHÿ256) ÿ3	
24-point double density		24	203.2dpi dpi:	203.2dpi (nL+nHÿ 256)ÿ3	

print dots per 25.4 mm {1 inch}

[Note] •If the value of m is out of the specified range, the data after nL and after are treated as normal data. nL and

nH represents the number of points in the bitmap in the horizontal direction, and the number of points is calculated by nL+nH*256.

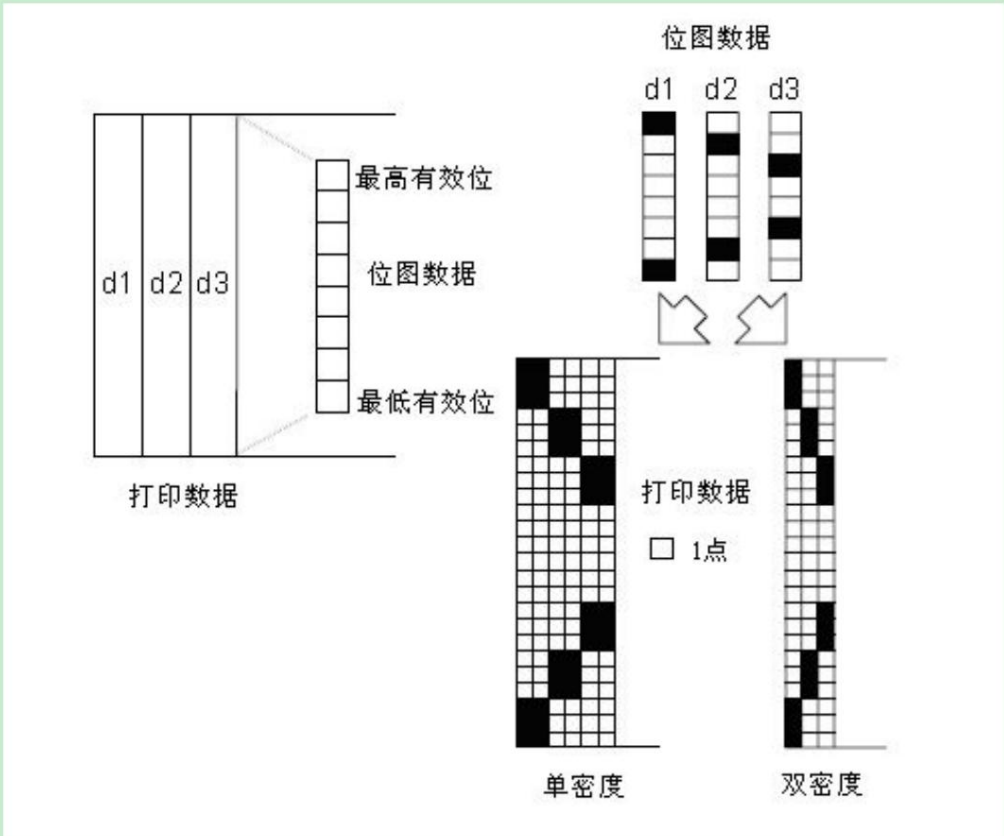
- If the bitmap data input exceeds the number of dots that can be printed on one line, the excess data is ignored.
- d represents bitmap data. Set the corresponding bit to 1 to print a point, or 0 to not print a point.
- If the width of the print range set with GSL and GSW is wider than that required by the data sent with the ESC* command hours, do the following for the line in question (but the print cannot exceed the maximum printable range):

ÿ The width of the print area is expanded to the right to accommodate the amount of data.

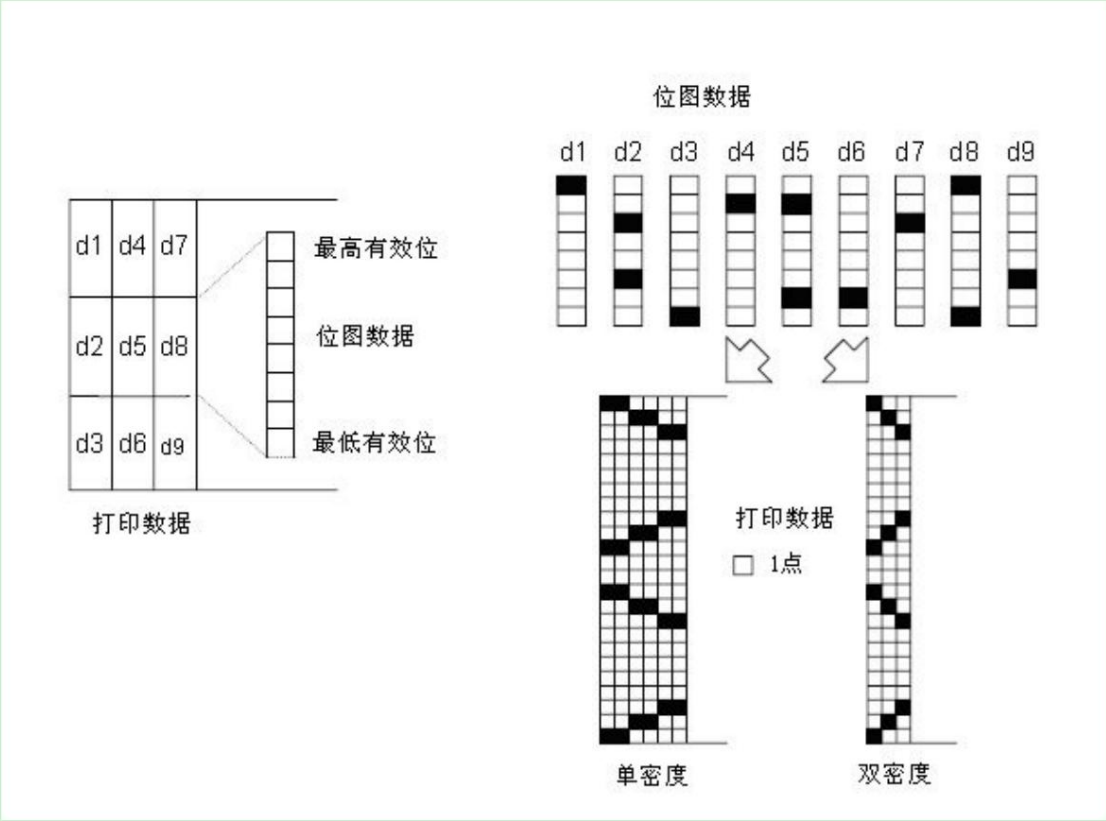
ÿ If step ÿ does not provide enough width for the data, then the left edge is reduced to fit the data according to. For each bit of data in single-density mode (m=0, 32), the printer prints two dots: for For each bit of data in double density mode (m=1,33), the printer prints one dot. calculating a

These must be considered when determining the amount of data that can be printed in a row.

- After printing a bitmap, the printer returns to normal data processing mode.
- This command is not affected by print mode (bold overlay, underline, character size, or reverse print) unless is the reverse printing mode.
- Example diagrams describe the relationship between image data and the dots being printed.
- When 8-point bitmap is selected:



- When 24-point bitmap is selected:



ESC - n

[name] set/ununderline

[Format]	ASCII code	ESC		n
	Hexadecimal Code 1B	Decimal	2D	n
	Code [Range] 0ÿñÿÿ2,48ÿÿñÿÿ27	45		n

50

[Description] Set/disable underline mode based on the following n values:

n	Function
0, 48	Disable underline mode
1, 49	Set underline mode (1 point thick)
2, 50	Set underline mode (2-dot thick)

[Note] • The printer can underline all characters (including the space to the right of the character), but is set by HT
Except for the blanks set.

- The printer cannot underline characters rotated 90° clockwise and characters in reverse.
- When the underline mode is released by setting the value of n to 0 or 48, the following data is not printed underline
line, and the thickness of the underline set before releasing the underline mode does not change. default underscore
Line thickness is 1 point.
- Changing the character size does not affect the current thickness of the underline.
- Using ESC! can also set or cancel the underline mode. Note, however, that the last command received
It's effective.

[default] n=0

[reference] ESC!

ESC 2

[name] select default line spacing

[Format]	ASCII code	ESC	2
	hex code decimal	1B	32
	code	27	50

[Description] Select the line spacing as 3.75mm (30*0.125mm).

[Note] • Line spacing can be set independently in standard mode.

[reference] ESC 3

ESC 3n

[name] set line spacing

[Format]	ASCII	ESC	3 n
	Hexadecimal	1B	33 n
	Code	27	51 n

[Range] 0ÿñÿÿ255

[Description] Set the line spacing to [n ÿ 0.125mm].

[Note] • Line spacing can be set independently in standard mode and page mode.

- Use vertical motion unit (y) in standard mode.

[default] n=30

[reference] ESC 2

ESC ? n

[name] Cancel user-defined characters

[Format] ASCII code ESC ? n

hex code 1B 3F n

Decimal code 27 63 n

[Range] 32ÿñÿÿ126

[Description] Cancel user-defined characters.

[Notes] • This command terminates the use of the style defined for the character encoding specified by n. in the user-defined word

After the character is canceled, it is printed in the corresponding mode of the internal character.

- In fonts selected with ESCI, this command deletes the style defined for the specified encoding.
- If a user-defined character is not defined, the printer ignores the command.

[reference] ESC &,ESC %

ESC @

[name] initialize printer

[Format]	ASCII code	ESC	@
	hexadecimal	1B	40
	code decimal code	27	64

[Description] Clears the data in the print buffer and resets the printer mode to the valid mode of the printer when the power is turned on.

[Note] • The settings of the DIP toggle switches are no longer checked.

- The data in the receive buffer is not cleared.

ESC D n1...nk NULL

[name] set horizontal anchor point

[Format] ASCII code ESC D n1...nk NUL

hex code 1B 44 n1...nk 00

ESC E n	Decimal code 27 68 n1...nk [Range] 1ÿ nÿ 255	0
0ÿÿkÿ 32		
[Description] Set the horizontal positioning position.		
<ul style="list-style-type: none">• n specifies the column number starting from a row to set the horizontal positioning position.• k represents the total number of horizontal positioning positions to be set.		
[Note] •The horizontal positioning position is stored as a value, and this value [character width*n] is measured from the beginning of the line. The character width includes the space to the right of the character, and double-width characters are set at twice the width of normal characters. • This command deletes the previously set horizontal positioning position. • When n=8 is set, the print position is moved to the ninth column by sending HT. • Up to 32 positioning positions can be set (k=32). Data over 32 positioning positions is processed as normal data. • Transmit [n]k in ascending order and place a NUL code 0 at the end. when [n]k is less than or equal to the previous value		
When [n]k-1, the positioning setting is completed, and the subsequent data is processed as normal data. • ESC D NUL cancels all horizontal positioning positions. • The previously specified horizontal positioning position does not change even if the character width changes. • For standard form, the character width is memorized. [Default] The default anchor position is 8 character intervals (columns		
917 25...) of font A (12*24). [reference]		
HT		

ESC E n

[Name] Enable/disable bold print [Format] ASCII
ESC E n Hex 1B 45 n Decimal 27 69 n [Range] 0ÿ nÿ 255
[Description] Enable or disable bold print mode .
When the least significant bit of n is 0, the bold print mode is released.
When the least significant bit of n is 1, the bold print mode is set.
[Note] • Only the least significant bit of n is allowed to use • This command and ESC! set and release the bold print mode in the same way. Be careful when using this command with ESC!. [default] n=0 [reference]
ESC !

ESC G n [Name]
Set/cancel overlay printing [Format] ASCII code
ESC G n Hexadecimal code 1B 47 n Decimal code 27 71
n
[Range] 0ÿ nÿ 255 [Description]
Set or cancel the overlay printing mode. • When the least significant bit of n is 0, the overlay printing mode is released. • When the least significant bit of n is 1, sets the overlay printing mode.
[Note] • Only the least significant bit of n is allowed. • The printer output is the same in overlay mode and bold mode. [Default] n=0 [Reference] ESC E

ESC J n [name]
print and feed

[Format]	ASCII	ESC	J	n
	Hexadecimal Code	1B	Decimal	4A
	Code	27	74	n
[Range]	0ÿnÿÿ255			

[Description] Print out the data in the print buffer and feed [n ÿ0.125 mm].

[Notes] • After printing, this command sets the start position of the printer as the start of the line.

- The feed amount set by this command does not affect the value set by the ESC2 or ESC3 command.
- In standard mode, the printer uses vertical motion units (y).

ESC M n

[name] select font

[Format]	ASCII	ESC	M	n
	Hexadecimal	1B	4D	n
	Code	27	77	n

[range] n=0, 1, 48,49

[description] Select character font

n Function

0, 48 Select font A(12*24) .

1, 49 Select font B(9*17).

[Note] • ESC ! can also select font type. But the settings made by the last received command are valid.

[Reference] ESC !

ESC V n

[Name] Set/Cancel 90ÿ clockwise rotation

[Format]	ASCII code	ESC	IN	n
	Hexadecimal code	1B	Decimal	56
	code 0ÿnÿÿ1,48ÿnÿ 49	27	86	n

[Range]

[Description] Set/Cancel 90ÿ clockwise rotation

The use of n is as follows:

n Function

0,48 Release the 90ÿ clockwise rotation mode.

1,49 Set 90ÿ clockwise rotation mode.

[Notes] • This command affects printing in standard mode and the setting is always valid.

- When underline mode is set, the printer will not underline characters that are rotated 90ÿ clockwise.

- In the clockwise 90ÿ rotation mode, the double height and double width commands enlarge the direction of the characters and the double height times in the normal mode

The wide command enlarges the characters in the opposite direction.

[default] n=0

[reference] ESC!, ESC -

ESC \ nL nH

[name] set relative print position

[Format] ASCII code ESC \ nL nH

Hex code 1B 5C nL nH

Decimal code 27 92 nL nH

[Range] 0 \bar{y} nL \bar{y} 255

0 \bar{y} nH \bar{y} 255

[Description] Take the current position as the base point and use the horizontal or vertical motion unit to set the printing starting position.

- This command sets the print position to [(nL+nH*256)*0.125mm] distance from the current position.

[Note] • Any settings beyond the printable area are ignored.

- When distance N is specified as right: nL+nH \bar{y} 256=N

When distance N is specified as left: (reverse direction), use 65536's complement. nL+nH \bar{y} 256=65536-N

- In standard mode, horizontal motion units are used.

[reference]

ESC \$

ESC a n

[name] select alignment

[Format]

ASCII

ESC

a n

Hexadecimal 1B Decimal

61

n

27

97 n

[Range] 0 \bar{y} n \bar{y} 2,48 \bar{y} n \bar{y} 50

[Description] Align a line of data according to the specified position as follows

n is used to select the alignment:

n	align
0,48	Align left
1, 49	Centered
2, 50	Align right

[Note] • This command is valid only at the beginning of a line in standard mode.

- This command performs alignment in the print area.
- This command aligns white space according to HT, ESC\$ or ESC\.

[default] n=0

ESC c 5 n

[name] enable/disable panel keys

[Format] ASCII code ESC c

5 n

hex code 1B 63 35 n

Decimal code 27 99 53 n

[Range] 0 \bar{y} n \bar{y} 255

[Description] Activates or deactivates the panel keys.

- When the least significant bit of n is 0, the panel key is activated.
- When the least significant bit of n is 1, the panel keys are disabled.

[Note] • Only the least significant bits of n are used.

- If the panel keys are disabled, all keys are disabled when the printer cover is closed.
- For this printer, the only panel button is the feed button.
- When in macro execution standby, the feed key is activated regardless of the command setting. but not

paper feed.

[default] n=0

ESC dn

[name] print and feed n lines

[Format] ASCII code ESC d Hexadecimal code

n

1B 64 n

Decimal code 27 100 n

[Range] 0 \bar{y} n \bar{y} 255

[Description] Print out the data in the print buffer and feed n lines. [Note] • This command sets the print start position as the line start point. • This command does not affect the line spacing set by the ESC 2 or ESC 3 commands. • Maximum paper feed is 1016 mm {40 inches}. If the specified paper feed amount (n) exceeds 1016 mm {40 inches}, the printer only feeds 1016 mm {40 inches} of paper. [Reference] ESC 2, ESC 3

ESC p m t1 t2

[Name] Generated pulse

[Format] ASCII code ESC pm t1t2 Hex code 1B 70 m t1t2

Decimal code 27 112 m t1t2 [Range]

m=0,1,48,49

0ÿ t1ÿÿ255

0ÿ t2ÿÿ255

[Description] Send a pulse to the specified connection pin. Power-on time=t1x2 millisecond Power-off time=t2x2 millisecond m =0/48 pulse sent to cash drawer output pin 2; m =1/49 pulse sent to cash drawer output pin 5.

ESC tn [name]

select character code table

[Format]	ASCII code ESC	t	n
	Hex Code 1B Dec Code 27	74	n
	[Range] 0ÿ nÿ 5,16ÿ nÿ	116	n

19,n=255 [Description] Select page n from the character code table. [Default] n=0 [Reference]

Character code table

ESC { n [name]

Set/disable reverse printing mode [format] ASCII

code ESC { hex code 1B 7B n decimal code 27 123 n

n

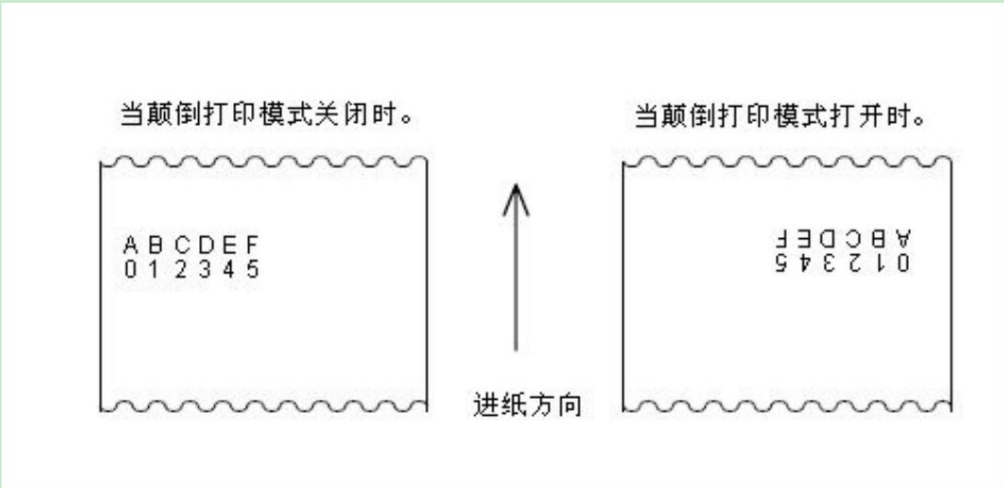
[Range] 0ÿ nÿ 255 [Description]

Set or cancel the reverse printing mode. • When the

least significant bit of n is 0, turn off reverse printing mode. • When the

least significant bit of n is 1, turn on upside-down printing mode. [Note]

- Only the least significant bit of n is valid. • This command is valid only when entered at the beginning of a line in standard mode. • In upside-down printing mode, the printer rotates the line to be printed by 180° before printing. [default] n=0 [instance]



FS p n m

[name] print NV bitmap

[Format] ASCII code FS pnm

Hex code 1C 70 nm

Decimal code 28 112 nm

[Range] 1ÿ nÿ 255

0ÿÿmÿ 3,48ÿÿmÿÿ51

[Description] Print the NV bitmap n in the mode specified by m.

m	Mode	vertical dot density	Horizontal dot density
0, 48 normal 1, 49 times		203.2dpi	203.2dpi
wide 2, 50 times high 4		203.2dpi	101.6dpi
times size		101.6dpi 203.2dpi	
3ÿ51		101.6dpi 101.6dpi	

dpi: Print dots per 25.4 mm {1 inch}.

- n is the number of NV bitmaps (defined with the FSq command).
- m specifies the bitmap mode.

[Note] • NV bitmap is a bitmap defined in non-volatile memory. Defining FSp printing with FSq

- This command is invalid when the specified NV bitmap does not exist.
- In standard mode, the command is valid only when there is no data in the print buffer.
- This command is not affected by print mode (bold print, overlap, underline, character size, reverse print or character 90ÿ), except for reverse print modes such as rotation.
- If the width of the NV bitmap print area set with GSL and GSW is less than one vertical line, only the needle The subject line does the following. In NV bitmap mode, a vertical line means normal mode (mÿ0, 48) and one point in double height mode (m'2,50), double width mode (m'1,49) and quadruple size mode Two points under (mÿ3,51).
ÿIn the NV bitmap mode, the width of the print area is extended to one vertical line to the right. In this case, no exceeds the print area.
ÿ If the width of the print area cannot be extended by one vertical line, the left margin is reduced to accommodate one vertical line.
- If the downloaded bitmap to be printed exceeds one line, the excess data will not be printed.
- In normal and double-width modes, the command feeds n points (n is the NV bitmap height), and in double-height and quadruple-large In small mode (the command feeds 2n points, n is the height of the NV bitmap), and the line set by ESC2 or ESC3 Spacing is irrelevant.
- After printing the bitmap, this command sets the print position at the beginning of a line, and uses normal numbers for subsequent data.

processed according to.

[reference] ESC *, FS q, GS /, GS v 0

FS q n [xL xH yL yH d1...dk]1... [xL xH yL yH d1...dk]n

[name] define NV bitmap

[Format] ASCII code FS qn [xL xH yL yH d1...dk]1...[xL xH yL yH

d1...dk]n hex code 1C 71 n [xL xH yL yH d1...dk]1...[xL xH yL yH
d1...dk] decimal code 28 113 n [xL xH yL yH
d1...dk]1...[xL xH yL yH d1...dk]n

[Range] 1ÿ nÿ 255

0ÿÿxLÿÿ255

0ÿÿxHÿÿ3(when 1ÿÿ(xLÿ xHÿ 256)ÿ 1023 0ÿÿyLÿÿ255

0ÿÿyHÿÿ1(when 1ÿÿ(yLÿ yHÿ 256)ÿ 288 0ÿÿdÿ 255

k=(xLÿ xHÿÿ256)ÿÿ(yLÿÿÿyHÿÿ256)ÿÿ8 Data area

defined by sum meter=192K bytes [Description] Use

A specific value of n defines the NV bitmap. • n

specifies the number of NV bitmaps defined. • xL,xH

specifies the number of points in the horizontal direction for the

defined NV bitmap as (xL+xH*256)*8. •yL, yH

specifies the number of points in the vertical direction for the NV bitmap in the definition as

(yL+yH*256)*8.

[Caution] •ÿÿExecuting the write command frequently may damage the NV memory. Therefore, it is recommended to perform no more than 10 writes.

•ÿÿAfter the process of placing an image into NV memory, the printer performs a hardware reset

User-defined characters, downloaded bitmaps and macros should be defined after completing this command. The printer clears the receive and print buffers and resets to the mode that was in effect at power up. At this point the DIP toggle switches are checked again. (Does not support hardware reset interface)

• This command cancels all NV bitmaps that have been defined with this command.

• From the start of processing of this command until the completion of the hardware reset, no mechanical

Initialize the print head position when the board is open, use the feed button to feed paper, etc.).

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

• An NV bitmap is a bitmap defined in non-volatile memory. Use FSq to define FSp printing. • In standard mode, this command is only valid at the beginning of a line. • The command is valid only after the 7 bytes <FS ÿÿyH> of the command are processed normally. • When the data volume 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. • In the first set of bitmaps, when any parameter in xL, xH, yL, yH exceeds the defined range, the command is called

prohibit.

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

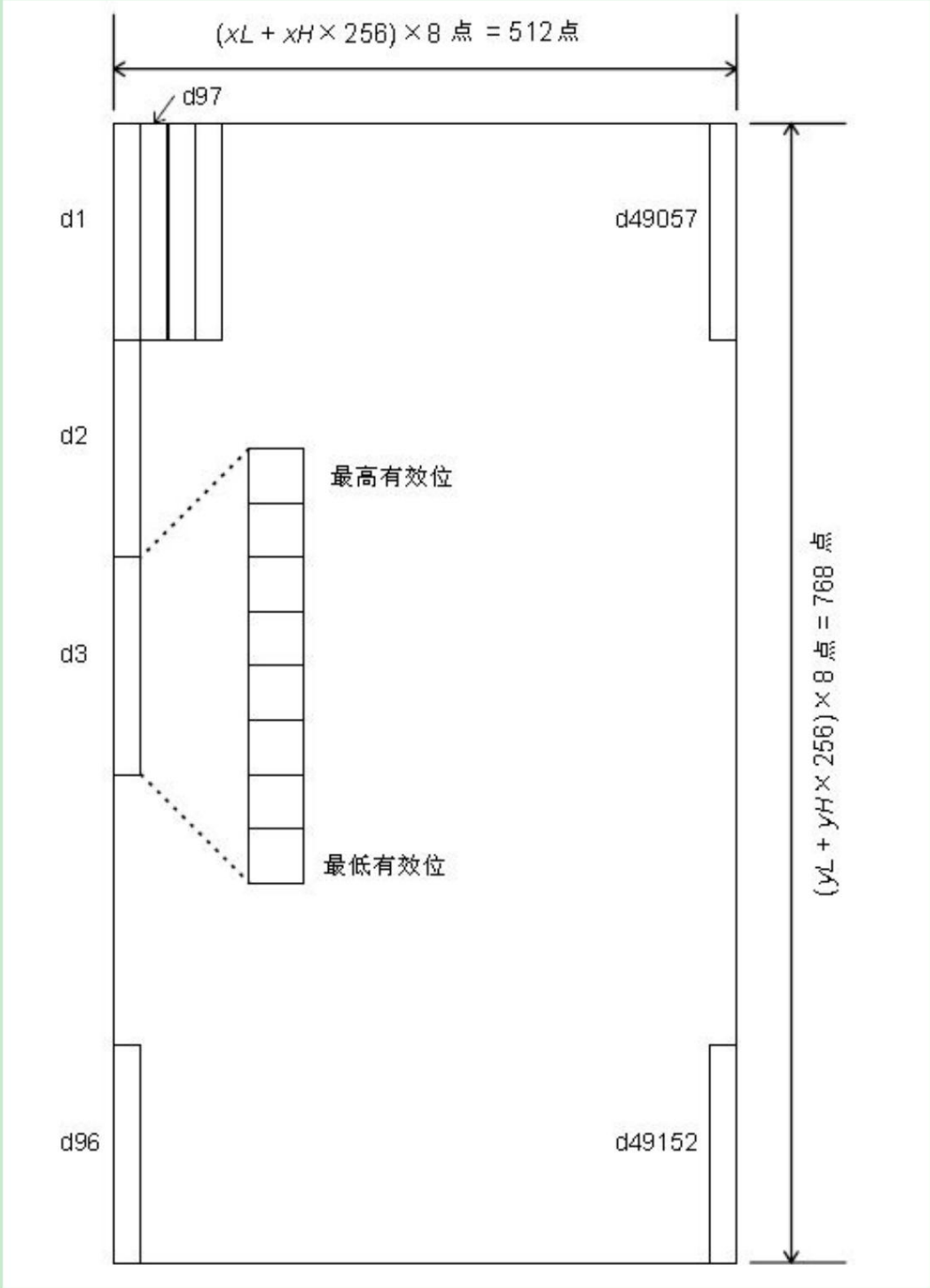
• d represents definition data. In data (d), a 1 bit specifies a point to be printed and a 0 bit specifies a point not to be printed. • This command defines n as the number of NV bitmaps. The number increases sequentially from bitmap 01H. So the first data group [xLxHyLyHd1...dk] is NV bitmap 01H and the last data group [xLxH yL yH d1...dk] is NV bitmap n. The total is consistent with the number of NV bitmaps set by the FSp command. • The definition data of an NV bitmap consists of [xLxHyLyHd1...dk]. Therefore, when n=1 when there is only one NV bitmap, the printer processes the data set [xLxH yL yH d1...dk] only once. The printer uses ((data:(xLÿ xH*256) * (yLÿ yH*256) * 8) ÿÿ[header:4]) bytes of NV memory.

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

- Even if ASB is set, the printer does not transmit ASB status or perform status detection during processing of this command.
 - When this command is received during macro definition, the printer stops the macro definition and starts executing the command.
 - Once an NV bitmap is defined, it cannot be deleted by executing ESC@ command, reset, or power off.
 - This command only executes the definition of NV bitmap and does not execute printing. The printing of the NV bitmap is performed by the FSp command.
- OK.

[Reference] FS p

[Example] When xL=64,xH=0, yL=96,yH=0



GS ! n

[name] set character size

[Format] ASCII code GS , n

Hexadecimal code 1D Decimal 21 n

code 29 33 n

[scope] 0ÿÿ nÿ 255

(1 ÿÿVertical Multiplierÿÿ8, 1ÿÿHorizontal Multiplierÿÿ8)

[Description] Use 0 to 2 digits to set character height and 4 to 7 digits to set character width as shown below

Bit off/on hex decimal function			
0 Character height setting. See Table 2.			
1			
2			
3			
4 Character width setting. See Table 1.			
5			
6			
7			

Table 1: Character width settings

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

Table 2: Character Height Settings

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

[Note] • This command is valid for all characters (alphanumeric characters and Chinese characters) except HRI characters.

- If n is outside the defined range, the command is ignored.
- In standard mode, the vertical direction refers to the paper feed direction. However, when the character direction is rotated 90ÿ clockwise The relationship between the vertical and horizontal directions is reversed.
- When characters are enlarged in a row at different sizes, all characters in a row are aligned along the baseline.
- Double-width and double-height modes can also be turned on or off with the ESC ! command. The last command received will be valid.

[default] n=0

[reference] ESC !

GS B n

[Name] Set/Cancel the reverse print mode

[Format] ASCII code GS B Hexadecimal code 1D 42 n n

Decimal code 29 66 n

[Range] 0ÿ nÿ 255

[Description] Set or cancel the reverse printing mode.

- When the least significant bit of n is 0, the highlight mode is turned off.
- When the least significant bit of n is 1, the highlight mode is turned on.

[Note] • Only the least significant bit of n is valid.

- This command is valid for both built-in characters and user-defined characters.

- When the reverse mode is on, it is also valid for the whitespace set by ESC
- SP. • This command does not affect bitmaps, user-defined bitmaps, barcodes, HRI characters, and nulls skipped by HT between ESC \$ and ESC \.
- This command does not affect line spacing.
- Inverse mode takes precedence over underline mode. When the reverse mode is set, even if the underline mode is on, it is disabled (but not canceled).

[default] n=0

GS H n

[Name] Select the print position of HRI characters

[Format] ASCII code GS H n Hex code 1D 48 n Decimal code 29 72 n [Range] 0~3,48~51

[Description] When printing barcodes, select the print position of HRI characters below:

n	print position
0,48	Not Print
1,49	Above Bar Code
2,50	Below Bar Code
3,51	Above and Below Bar Code • HRI

Indicates the readable bar code corresponding character.

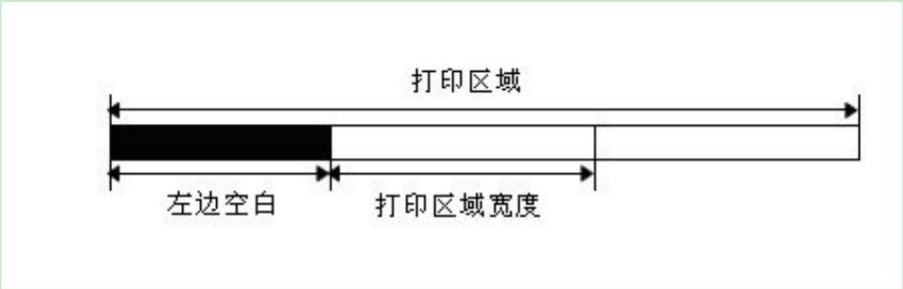
[Note] • HRI characters are printed using the font specified by GS f. [Default] n=0 [Reference] GS f,GS k

GS L nL nH [Name] Set the left margin

[Format] ASCII code GS L nL nH Hexadecimal code 1D 4C nL nH Decimal code 29 76 nL nH [Range] 0~255

0~255

[Description] Use nL and nH to set the left margin.



[Note] •The left margin is set to $[(nL+nH*256)*0.125mm]$.

- In standard mode, this command is only valid when processing at the beginning of a line.
- If the setting is outside the printable range, the maximum value of the printable unit is used.

[Default value] nL=0,nH=0

[Reference] GS W

GS f n

[name] select HRI character font

[Format] ASCII code GS fn

 hex code 1D 66 n

 Decimal code 29 102 n

[Range] nÿ0,1,48,49

[Description] Select a font for HRI characters to be used when printing barcodes.

 n is used to select a font as follows:

n	font
0,48	Font A(12*24)
1,49	Font B(9*17)

[Note] • HRI refers to the corresponding characters of the readable barcode.

 • Print HRI characters at the location specified by GS H.

[default] n=0

[Reference] GS H, GS k

GS hn

[name] set barcode height

[Format] ASCII code GS h n

 hex code 1D 68 n

 Decimal code 29 104 n

[Range] 1ÿ nÿ 255

[Description] Set the barcode height. n Set the number of dots in the vertical direction.

[default] n=162

[reference] GS k

ÿ GS km d1...dk ZERO ÿ GS kmn d1...dk

[name] print barcode

[Format] ÿASCII code GS k m d1...dk BAD

 hex code 1D 6B m d1...dk 00

 Decimal code 29 107 m d1...dk 0

 ÿ GS k m n d1 ... on

 A 1D 6B m n d1 ... on

 S 29 107 m n d1 ... on

 Six 29 107 m n d1 ... on

 ten 29 107 m n d1 ... on

[scope] Enter ÿ0ÿ mÿ 6 (k and d depend on the barcode system used)

 Enter ÿ65 ÿ mÿ 73 (n and d depend on the barcode system used)

[Description] Select a barcode system and print barcodes.

m The selected barcode system is as follows:

m barcode	system	number of characters	Remark
ÿ 0	UPC-A	11ÿkÿ 12	48ÿÿdÿ 57
	1 UPC-E	11ÿÿkÿ 12	48ÿÿdÿ 57
	2 JAN13(EAN13)	12ÿÿkÿ 13	48ÿÿdÿ 57
	3 JAN8(EAN8)	7ÿÿkÿÿ8	48ÿÿdÿ57

	4 CODE39	1ÿÿkÿ	48ÿÿdÿ 57,65ÿÿdÿ 90,32, 36,37,43, 45,46,47
	5 ITF	1ÿÿk(evennumber)	48ÿÿdÿ 57
	6 CODABAR	1ÿÿkÿ	48ÿÿdÿ 57,65ÿ dÿÿ68,36, 43,45,46, 47,58
ÿ 65	UPC-A	11ÿÿnÿ 12	48ÿÿdÿ 57
	66 UPC-E	11ÿÿnÿ 12	48ÿÿdÿÿ57
	67 JAN13(EAN13)	12ÿn ÿ 13	48ÿÿdÿ 57
	68 JAN8(EAN8)	7ÿÿnÿ 8	48ÿÿdÿ 57
	69 CODE39	1ÿÿnÿ 255	48ÿ dÿÿ 57,65ÿÿdÿÿ90,32, 36,37,43, 45,46,47
	70 ITF	1ÿÿnÿ 255(evennumber) 48ÿÿdÿ 57	
	71 CODABAR	1ÿÿnÿ 255	48ÿÿdÿ 57,65ÿ dÿÿ68,36, 43,45,46, 47,58
	72 CODE93	1ÿÿnÿ 255	0ÿÿdÿ 127
	73 CODE128	2ÿÿnÿ 255	0ÿÿdÿ 127

[Note ÿ] •ÿ This command is terminated by a NUL code.

- ÿWhen the barcode system used is UPC-A or UPC-E, the printer prints after receiving the 12-byte barcode data barcode and process subsequent data as normal data.
- ÿWhen the barcode system used is JAN13 (EAN13), the printer prints a bar after receiving the 13-byte barcode data shape code and process subsequent data as normal data.
- ÿ When the barcode system used is JAN8(EAN8), the printer prints the barcode after receiving the 8-byte barcode data and prints the barcode. Treat subsequent data as normal data.
- ÿ The number of ITF barcode data must be an even number. When an odd number of data is entered, the printer ignores the last data received

[Note ÿ] •ÿ n specifies the number of bytes of barcode data, and the printer treats n bytes of data as barcodes starting from the next character data processing.

- ÿIf n is out of the specified range, the printer stops processing the command and treats subsequent data as normal data deal with. [Notes in Standard Mode]
- If d is outside the specified range, the printer just feeds the paper and treats subsequent data as normal data.
- If the horizontal dimension exceeds the print area, the printer just feeds the paper.
- This command feeds paper as required to print barcodes, regardless of the line spacing set by ESC2 or ESC3.
- This command is valid only when there is no data in the print buffer. print when there is data in the print buffer
The machine treats the subsequent data of m as ordinary data.
- After printing a barcode, this command sets the print position at the beginning of a line.
- This command is not affected by print mode (bold overlap, underline, character size, reverse print or character 90ÿ rotation, etc.)
Affects upside-down print mode except. When using thermal labels:
- If the barcode height does not fit on the current label, the excess is printed on the next label. when
When using CODE93(m=72):
- The printer prints an HRI character (ÿ) at the beginning of the HRI string as the start word of the HRI string
symbol.
- The printer prints an HRI character (ÿ) at the end of the HRI string as the terminator of the HRI string
symbol.
- The printer prints HRI characters (ÿ+a literal character) as control characters (<00>H to <1F>H
and <7F>H):
- When using CODE128 with this printer, please consider the following factors regarding data transfer:
ÿ The header of the barcode data string must be the code set selection character (CODEA, CODEB, or
CODEC) to select the codeset to use first.
ÿUse the character "{" and a character combination to define special characters. Defined by sending "{" twice in a row

ASCII character "{".

Special characters	transmit data		
	ASCII hexadecimal	decimal	
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] Print the instance data of "No.123456"

In this example, the printer first prints "No." with CODEB, and then prints the following numbers with CODEC. GS
k73 09 78 111 4631 32 33 34 35 36



- If the data string header of the barcode is not the codeset selection character, the printer stops command processing and will Continued data is treated as normal data.
- If the combination of "{" and subsequent characters does not apply to any special characters, the printer stops at the command and treat subsequent data as ordinary data.
- If the printer receives a character that cannot be used in a special encoding set, the printer stops command processing and Subsequent data are processed as normal data.
- The printer does not print the HRI characters corresponding to the shift characters or the encoding set selection characters.
- The HRI character for functional characters is a space.
- HRI characters for control characters (<00>H to <1F>H and <7F>H) are spaces.

<Other> Make sure to keep the spacing on the left and right of the barcode (the spacing varies depending on the type of barcode).
[Reference] GS H, GSf, GS h, GS w

GS v 0 m xL xH yL yH d1...dk

[name] print raster bitmap

[Format]	ASCII code	GS	v 0 m xL xH	yL yH d1...dk
Hexadecimal Code 1D			76 30 m xL xH	yL yH d1...dk
Decimal Code [Range] 0ÿ rā			11 48 m xL xH	yL yH d1...dk
3		ÿÿ mÿ 51	8	
	0ÿÿxLÿÿ255			
	0ÿÿxHÿÿ255 here 1ÿÿ(xL+xH*256)ÿ 128			
	0ÿÿyLÿÿ255			
	0ÿÿyHÿÿ8 here 1ÿÿ(yL+yH*256)ÿ 4095			
	0ÿÿdÿ255			
	k=(xL+xH*256)*(yL+yH*256)(kÿÿ0)			

[description] Sets the raster bitmap mode. The m value setting mode is as follows:

m	Mode	vertical dot density	Horizontal dot density
0, 48	normal	203.2dpi	203.2dpi

1, 49	Double	203.2dpi	101.6dpi
2, 50	width,	101.6dpi	203.2dpi
3, 51	double height, quadruple size	101.6dpi	101.6dpi

(dpi: print dots per 25.4 mm {1 inch})

- xL, xH, set the number of data bytes in the horizontal direction of the bitmap (xL+xH÷256)
- yL, yH, set the number of data bytes in the vertical direction of the bitmap (yL+yH÷256)

[Note] • In standard mode, this command is valid only when there is no data in the print buffer.

- For raster bitmap printing, this command is not affected by the print mode (character size, bold, overlapping, upside-down print, underline, reverse print mode, etc.).
- If the width of the print area set by GSL and GSW is less than the minimum width, the printer will only Row expands to minimum width. Minimum width is one for normal mode (m=0,48) and double height mode (m=2,50) point, two points for double-width mode (m=1,49) and quad-size mode (m=3,51).
- Data outside the print area is read in and discarded point by point.
- If the print position of subsequent characters is a multiple of 8. Subsequent printing of characters to be printed as raster bitmaps Print setting, by HT (horizontal tabulation), ESC\$ (set absolute print position,) ESC\ (set relative print position) and GSL (set the left margin setting).
- The ESCa (set alignment) setting is also valid for raster bitmaps.
- When this command is received during macro definition, the printer ends the macro definition and starts executing the command. make. The definition of this command should be cleared.
- d indicates bitmap data. Set the dots to be printed to 1 and the dots not to be printed to 0.

GS w n

[name] set barcode width

[Format]	ASCII code	GS w n
	Hex Code 1D 77 Dec Code [Range] 2ÿ	n
	nÿ 6	29 119 n

[Description] Set the horizontal size of the barcode.

n Set the barcode width as follows:

n	Multi-level barcode unit Width (mm)	binary barcode	
		Narrow width (mm)	Wide bar width (mm)
2	0.250	0.250	0.625
3	0.375	0.375	1.000
4	0.560	0.500	1.250
5	0.625	0.625	1.625
6	0.750	0.750	2.000

- The following are multi-level barcodes: UPC-A,UPC-E,JAN13(EAN13),JAN8(EAN8),CODE93,CODE128
- The following are binary barcodes: CODE39,ITF,CODABAR

[default] n=3

[Reference] GS k

GS x n

[Name] Set the left margin of barcode printing

[Format]	ASCII	GS x n
	hex code 1D 78 n	
	Decimal code 29 120 n	

[Description] The starting position of the printed barcode is: 0ÿ255

FS! n

[Name] Set the combination of Chinese character printing mode

[Format] ASCII code FS ! n

hex code 1C 21 n

Decimal code 2833 n

[Range] 0ŷ nŷ 255

[Description] Set the printing mode of Chinese characters, the setting of n is as follows:

Bit off/on	hex decimal ASB	status		
0				undefined.
1				undefined.
2 off		00	0	Double-width mode is disabled.
	open	04	4	Double-width mode is allowed.
3 off		00	0	Double-height mode is disabled.
		08	8	Double height mode is allowed.
4				undefined.
5				undefined.
6				undefined.
7 off		00	0	Underscore mode is prohibited.
		80	128	Underscore mode is allowed.

[Note] • When both double-width mode and double-height mode are set (including right and left character spacing), four double-sized characters.

- Printers can underline all characters (including right and left character spacing), but not HT Spaces set by the command, and characters rotated 90° clockwise are underlined.
- The width of the underline is specified by FS-. Regardless of character size.
- When some characters in a line are double-height or higher, all characters in the line are aligned along the baseline.
- You can use the GSI command to write Chinese characters in bold, and the settings of the last received command are valid.
- The underline mode can be set or unset using the FS-command. The settings of the last received command are valid.

[default] n=0

[Reference] FS -,GS !

FS &

[Name] Set Kanji mode

[Format] ASCII FS &

hex code 1C 26

Decimal code 28 38

[Description] Select Kanji character mode

[Note] For Chinese type:

- When the Kanji character mode is selected, the printer processes all Kanji codes, two bytes at a time.
- Process Chinese characters in the order of the first byte and the second byte.
- When the power is turned on, the printer does not select Kanji mode.

[Reference] FS

FS-n

[Name] Set/cancel the underline mode of Chinese characters

[Format] ASCII code FS - n

hex code 1C 2D n

Decimal code 28 45 n

[Range] 0ŷ nŷ 2,48ŷ nŷ 50

[Description] Set or cancel the underline mode of Kanji characters according to the following n value.

n	Function
0, 48	Cancel the underline mode of Chinese characters.
1, 49	Sets the underline mode for Chinese characters (1-dot width).
2, 50	Sets the underline mode for Chinese characters (2-dot width).

[Note] • The printer can underline all characters (including right and left character spacing), but cannot
Spaces set by the HT command, and characters rotated 90° clockwise are underlined.

- By setting n to 0, after canceling the underline of Chinese characters, the underline printing will no longer be performed, but the
The specified underline width remains unchanged. The default underline width is 1 point.
- The specified glide width remains the same even if the character size changes.
- Underline mode can be set or unset using FSI, and the last command received is valid.

[default] n=0

[Reference] FS !

FS .

[Name] Cancel Kanji characters

[Format] ASCII code FS Hexadecimal

code 1C 2E

Decimal code 28 46

[Description] Cancel Chinese character mode

[Note] Chinese type:

- When the Kanji character mode is not selected, all character codes are treated as ASCII codes and processed one character at a time.
- The printer does not select Kanji mode when the power is turned on.

[Reference] FS &

FS S n1 n2

[name] Set full-width Chinese character spacing

[Format] ASCII Hexadecimal	FS	s	n1 n2
Code 1C Decimal Code [Range]		53	n1 n2
0ÿ n1ÿÿ255	28	83	n1 n2

0ÿÿn2ÿ 255

[Description] Set the left and right Chinese character spacing as n1 and n2 respectively.
Left character spacing is [n1*0.125 mm],
The right character spacing is [n2*0.125mm].

[Note] This command sets the left and right character spacing of normal size characters. When set to double-width mode, left and right
Character spacing is double that of normal mode.

- The spacing can be set separately with this command in standard mode.
- In standard mode, horizontal motion units are used.

[default value] n1=0,n2=0

ESC Z mnk dL dH d1... dn

[name]	print QR code		
[Format]	ASC II	ESC Z mnk dL dH d1 ... dn	
	Hexadecimal 1B	5A mnk dL dH d1...dn	
	Decimal 27	90 mnk dL dH d1...dn	

[Explanation] m specifies the flag of the version. (1~40,0:autosize)
n Specifies the EC level. (L: 7%, M: 15%, Q: 25%, H: 30%)

k specifies the component type. (1–8)

d is the length of the data and it contains 2 bytes.

dL: The first byte is the low bit number.

dH: The second byte is the host number.

d1...dn is the barcode data.

When m is 0, the printer automatically selects the barcode type.

ÿ This automatic type method is suggested.

ÿ "QR-CODE Model Form (Version)"

Version capacity (coded) by EC level				
	L(7%)	M(15%)	Q(25%)	H(30%)
1	19	16	13	9
2	34	28	22	16
3	55	44	34	26
4	80	64	48	36
5	108	86	62	46
6	136	108	76	60
7	156	124	88	66
8	194	154	110	86
9	232	182	132	100
10	274	216	154	122
11	324	254	180	140
12	370	290	206	158
13	428	334	244	180
14	461	365	261	197
15	523	415	195	223
16	589	453	325	253
17	647	507	367	283
18	721	563	397	313
19	795	627	445	341

FS W n

[Name] Enable/disable quadruple-size Chinese printing

[Format] ASCII code FS W n

hex code 1C 57 n

Decimal code 28 87 n

[Range] 0ÿÿÿÿ255

[Description] Set or disable quadruple-size Chinese printing

- When the least significant bit LSB of n is 0, the quadruple-size mode of Chinese characters is released.
- When the least significant bit LSB of n is 1, set the quadruple-size mode of Chinese characters.

[Details] • Only the least significant bit of n is valid.

- In quadruple-size mode, the size of the printed characters is the same as when the double-width and double-height modes are set at the same time
Same size.
- When the quadruple-size mode is canceled with this command, subsequent characters will be printed in the size of normal characters.
- When some characters in a row are of different heights, all characters in the row are aligned with respect to the baseline.
- When the character is enlarged horizontally, the character is enlarged to the right based on the left side of the character.
- You can also use FS! or GS! to set/unset the quadruple-width mode by selecting the double-width and double-height modes.
The setting of the command received after it is valid.

[default] n=0

[reference] FS !,GS !

DLE EOT n

[name] real-time status transmission

[Format] ASCII code

hex code

decimal code

10

16

EOT

04

4

n

n

n

[scope]

1 ÿ n ÿ 4

[describe]

The real-time transmission of the printer status parameter n is used to specify the printer status to be transmitted. The definition is as follows:

n = 1: transmit printer status

n = 2: transmit offline status

n = 3: transmit error status

n = 4: Transport roll paper sensor status

[Notice]

• Whenever a <10>H<04>H<n>(1 ÿ n ÿ 4) data sequence is received, it will be transmitted state. For example in the following command:

ESC ÿ m nL nH d1 . . . dk, d1=<10>H, d2=<04>H, d3=<01>H

• Do not use this command in commands containing 2 or more bytes

make. E.g:

If you want to send ESC 3 n to the printer, before n is sent, the DTR (for the host is DSR)

will become MARK, so a DLE EOT 3 interrupt occurs before n is received . DLE

The code <10>H of EOT 3 will be treated as the code <10>H of ESC 3 .

• The printer transmits the current status, each status is a byte of data.

• When sending status, the printer does not confirm whether the host can receive data.

•The printer starts to execute after receiving this command.

• In serial interface mode, even if the printer is offline, the receive buffer is full, or an error occurs

This command will also be executed when the error state occurs.

•In parallel interface mode, when the printer is busy, this command cannot be executed, when the printer is offline state, the printer does not enter the busy state.

• When automatic status reply (ASB) is enabled by the GS a command, it must be distinguished from the DLE EOT command sent status and ASB status.

n = 1: printer status

Bit off/on	hexadecimal code	decimal code	function	
0 off	is not used, selected as off.	00	0	
1 open	02 not used, selected as open.	2	2	
2Close	00 Cash drawer open/ close signal is low (connect to pin 3).	0		
	Open 04 Cash drawer open/close signal is high (connect pin 3).	4		
3	-	-	-	undefined.
4 on		10	16	Not used, selected as On.
5.6 --		-	-	undefined.
7 off	00		0	Not used, selected as Off.

n = 2: offline state

Bit off/on	hexadecimal code	decimal code	function	
0 off	00 not used, selected as off.	0	0	

1 on 2 off	02	2	Not used, selected as On.
00		0	The cover is closed.
	ON 04 3 OFF	4	The cover has been opened.
00 ON 08 4 ON 10		0	Paper is not fed by the feed key.
		8	Feed the paper by the feed key.
		16	Unused is selected as On.
5	-	-	undefined.
6 off 00 on 40 7 off 00		0	No errors.
		64	An error occurred.
		0	Not used, selected as Off.

n = 3: error state

Bit off/on	hexadecimal code	decimal code	function	
0 off 00 1 on 02		0	Not used, selected as Off.	
		2	Not used, selected as On.	
2	-	-	-	undefined.
3 off 00 on 08 4 on 10		0	No auto-cut errors.	
	5 off 00 on 20	8	An automatic paper cutting error has occurred.	
6 off 00 on 40		16	Not used, selected as On.	
		0	There are no unrecoverable errors.	
		32	An unrecoverable error occurred.	
		0	There are no automatically recoverable errors.	
		64	An automatically recoverable error occurred.	
7 off 00		0	Not used, selected as Off.	

Bit 6: If the roll paper cover is opened during printing or the temperature of the print head is too high, bit 6 will be set to ON until printing

The head temperature is effectively lowered.

n = 4: Continuous paper sensor status

Bit	off/on	hexadecimal code	decimal code	function
0	off	00	not used, selected as off.	
1	open	02	2	Not used, selected as On.
2.3	--	-	-	undefined.
4	on	10	16	Not used, selected as On.
5.6	off	00	0	Paper end sensor, there is paper.
	On	60 7	off	96
		00	0	Not used, selected as Off.