

MANUAL DE PROGRAMAÇÃO

PARA IMPRESSORA NÃO FISCAL ZP80-UBT

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Format specification

This section shows how to read and use the instructions of the manual. Please read it before programming.

The command instructions of the manual include:

- 1) Description of Name and function of the command. This is the first part of the command instruction, which provide the command of ASCII format and the function description.
- 2) Format. In this part, using three kinds of form: the ASCII, HEX and Decimal, to describe the command.
The default is Decimal if have no especial description,
For example: $1 \leq n \leq 4$, 1 is Decimal 1, not the ASCII code 1.
- 3) Scope. Provide the scope of the Variable.
- 4) Description. Provide the detailed explanation of the command.
- 5) Annotation. Provide some notes of the command. Commands under different mode, or coordinating with different commands may cause interaction, so we provide some details here
- 6) Reference. Provide some other commands which are interrelated or similar.

```

---> DLE EOT n      Real time transmission status
---> [Format]  ASCII      DLE      EOT      n
                Hex       10       04       n
                Decimal    16       4        n
---> [Range]     $1 \leq n \leq 4$ 
---> [Description]  Sending the printer state that designated by parameter n just in time
---> [Notes]       When printer receives the command, returns to the interrelated status
                    immediately....
---> [Reference]

```

HT

```

[Name]      Horizontal tab
[Format]    ASCII      HT
            Hex       09
            Decimal    9
[Description]  Moves the print position to the next horizontal tab position.
[Notice]     • This command is ignored unless the next horizontal tab position has been set.
            • If the next position of horizontal tab exceeds the printing area, the current
              position will be set as [printing width+1].
            • Horizontal tab positions are set with ESCD.
            • If the current position is at [printing width+1] when receives the command, the
              printer will carry out the action in row buffer and move the printing position to the Zero
              position of next line.

```

- The default value of tab position is every 8 standard ASCII characters (12*24) a tab.
- When the current row buffer is full,the printer will carry out the action below:
Under standard mode,printer prints the content of current row and sets the Printing position at the zero position of next line
Under page mode,the printer begins a new line and set the printing position at the zero position of next line.

[Reference] **ESC D**

LF

[Name] Printing and feeding line
[Format] ASCII LF
 Hex 0A
 Decimal 10
[Description] Printing the datas in the print buffer and feeds one line
[Notice] This command sets the print position to the beginning of the line.
[Reference] **ESC 2, ESC 3**

FF

[Name] Printing and feeding paper
[Format] ASCII FF
 Hex 0C
 Decimal 12
[Description] Printing all of the content in print buffer and returning to the standard mode, under the standard mode, if the printer establishes in the black mark paper mode, then printing the data in the buffer to feed paper to the black mark section, if haven't black mark, then feed the paper 30cm behind stop,the pre-print black mark specification is showed in the appendix C.the pre-print black mark instruction.If not at the black mark examing status and then only print the contents of buffer,don't feed paper.

[Note] ·Clearing the content in print buffer after printing.
 ·The printing area setup by ESC W returns to the default
 ·The printer don't cut paper.
 ·This command sets the current position at the beginning of the line

[Reference] **ESC FF, ESC L, ESC S**

CR

[Name] Printing and entering
[Format] ASCII CR

	Hex	0D
	Decimal	13
[Description]	the same as LF when the command is permitted,if not , it will be ignored.	
[NOTICE]	·Setting the printing position at the beginning of the line. ·The command is ignored under the serial interface mode. ·The printer allocation decides If the command is enabled under parallel mode.	
[Reference]	LF	

DLE EOT n

[Name]	Real time status transmission			
[Format]	ASCII	DLE	EOT	n
	Hex	10	04	n
	Decimal	16	4	n
[Range]	$1 \leq n \leq 4$			
[Description]	Sending the printer state that designated by parameter n just in time: n=1: Sending state of the printer n=2: Sending off line state n=3: Sending error state n=4: Sending state of paper sensor			
[Notice]	-When printer receives the command,returns to the interrelated status immediately ·Avoiding to put this command in the command sequence of more than2 characters. ·This command will be so valid even though the printer is set to forbid by the Command of ESC=(selecting peripheral). ·When sending printer current state,each state is indicated by 1byte ·Transmission state value of the printer can not confirm whether the master computer received ·Printer will carry out the command immediately once received ·This command is just available to the serial printer.The printer will carry out the command immediately under any state			

n = 1: Printer state

bit	0/1	HEX	Decimal	Fuction
0	0	00	0	Fix as 0
1	1	02	2	Fix as 1
2	0	00	0	The cash box open/close signal is low(the third of cash box plug leads foot)
	1	04	4	The cash box open/close signal is high(the third of cash box plug leads foot)
3	0	00	0	online
	1	08	8	offline
4	1	10	16	fix as 1

5,6				undefined
7	0	00	00	fix as 0

n = 2: off line state

bit	0/1	HEX	Decimal	function
0	0	00	0	fix as 0
1	1	02	2	fix as 1
2	0	00	0	close the top cover
	1	04	4	open the top cover
3	0	00	0	Not holding down the feed button
	1	08	8	holding down the feed button
4	1	10	16	fix as 1
5	0	00	0	Printer is not out of paper
	1	20	32	Printer is out of paper
6	0	00	0	No error state
	1	40	64	error state
7	0	00	0	fix as 0

n = 3: error state

bit	0/1	HEX	Decimal	Function
0	0	00	0	fix as 0
1	1	02	2	fix as 1
2	-	-	-	undefined
3	0	00	0	noun cutter error
	1	08	8	cutter error
4	1	10	16	fix as 1
5	0	00	0	noun unrecoverable error
	1	20	32	have unrecoverable error
6	0	00	0	noun auto recoverable error
	1	40	64	have auto recoverable error
7	0	00	0	fix as 0

n = 4: paper sensor state

bit	1/0	HEX	Decimal	Function
0	0	00	0	fix as 0
1	1	02	2	fix as 1
2,3	0	00	0	the sensor of paper is going out: have enough paper.
	1	0C	12	the sensor of paper is going out:the paper is going out
4	1	10	16	fix as 1
5,6	0	00	0	lack of paper sensor: have paper
	1	60	96	lack of paper sensor: noun paper
7	0	00	0	fix as

[Reference] DLE ENQ, GS a, GS r

ESC SP n

[Name] Setting the right space of characters

[Format]

	ASCII	ESC	SP	n
Hex		1B	20	n
Decimal		27	32	n

[Range] $0 \leq n \leq 255$

[Description] Setting the right space of character for[n*units of vertical or lateral shifting]

[Note]

- When the character enlarges,the space enlarges the sometimes.
- The command doesn't effect the setup of Chinese characters.
- The value which is set by the command underpage and standard mode is mutual independence.
- Units of vertical or lateral shifting area pointed by GSP.Changing units of vertical or lateral shifting does not change the current right space.
- Using lateral shifting units under standard mode.
- According to the direction of printing area and the beginning position to select vertical or lateral shifting units underpage mode.

The selection modes areas below:

①Using lateral shifting when the beginning position is the top left or lower right corner of the printing area which is set by ESC T;

②Using vertical shifting when the beginning position is the lower left or top right corner of the printing area which is set by ESC T;

The maximum right space is 255/203 inches.If setting beyond this value,it will automatically change into the maximum distance.

[Default] $n = 0$

[Reference] **GS P**

ESC ! n

[Name] selecting print mode

[Format]

	ASCII	ESC	!	n
Hex		1B	21	n
Decimal		27	33	n

[Range] $0 \leq n \leq 255$

[Description] Setting character print mode according to value of n

bit	1/0	HEX	Decimal	Function
0	0	00	0	Standard ASCII style A (12×24)
	1	01	1	Compressing ASCII style B(9×17)
1,2				Undefined
3	0	00	0	Cancel bold font
	1	08	8	Select bold font

4	0	00	0	Cancel double height mode
	1	10	16	Select double height mode
5	0	00	0	Cancel double width mode
	1	20	32	Select double width mode
6				undefined
7	0	00	0	Cancel underline mode
	1	80	128	Select underline mode

- [Notice]
- When selected double height or double width mode,double size characters are printed.
 - Any character can be added underline except the space set by HTand the characters clock wise 90 degrees.
 - Underline is not related to characters but confirmed by ESC-.
 - When some characters in a line are double or more height,all the characters on the line are aligned at the base line.
 - ESC E can als selector cancel bold font.However,the command of the setting of the last received command is effective.
 - ESC- can also turn on or off underline mode.However, the setting of the last received command is effective.
 - GS ! can also set the character boundary.However,the setting of the last

[Default] n = 0

[Reference] **ESC -, ESC E, GS !**

ESC \$ nL nH

[Name] Setting absolute print position

[Format]

ASCII	ESC	\$	nL	nH
Hex	1B	24	nL	nH
Decimal	27	36	nL	nH

[Range]

$0 \leq nL \leq 255$

$0 \leq nH \leq 255$

[Description] Setting the distance from the beginning of the line to the position at which (nL+nH×256) ×(vertical or horizontal motion unit)

[Reference]

This command is ignored if the setting position is out of the printing area.

Vertical and horizontal motion units are set by GS P.

Using horizontal motion units under standard mode.

Under page mode,selecting to use vertical or horizontal motion units according to the direction of printing area and zero position.The system of selection is as below:

① Using horizontal shifting when the beginning position is the top left or lower right corner of the printing area which is set by ESC T;

②Using vertical shifting when the beginning position is the lower left or top right corner of the printing area which is set by ESC T;

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

ESC % n

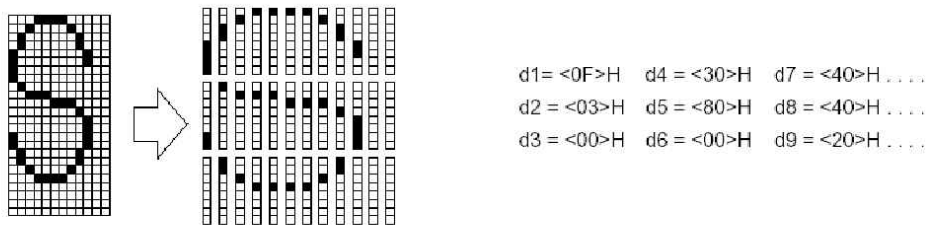
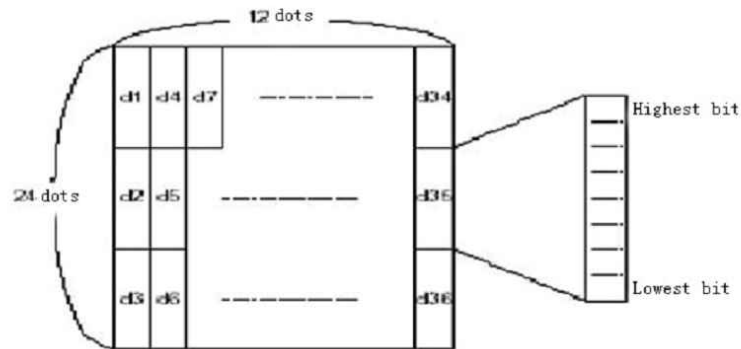
[Name]	Selecting/Canceling self defined character			
[Format]	ASCII	ESC	%	n
	Hex	1B	25	n
	Decimal	27	37	n
[Range]	$0 \leq n \leq 255$			
[Description]	Selecting/Canceling self defined character			
	·When n(LSB)=0, cancel user defined character set.			
	·When n(LSB)=1, select user defined character set.			
[Notice]	·When cancel user defined character set, auto select built in character set.			
	· n only LSB is available.			
[Default]	n = 0			
[Reference]	ESC &, ESC ?			

ESC & y c1 c2 [x1 d1...d(y × x1)]...[xk d1...d(y × xk)]

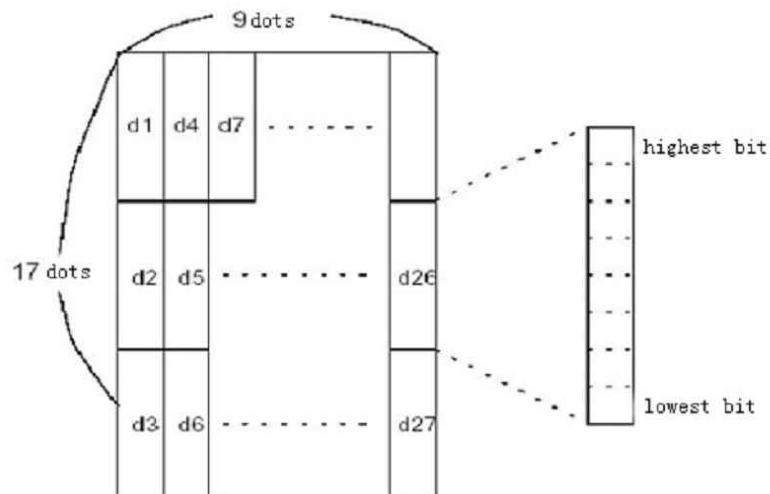
[Name]	Define user defined character			
[Format]	ASCII	ESC	&	y c1 c2 [x1 d1...d(y × x1)]...[xk d1...d(y × xk)]
	Hex	1B	26	y c1 c2 [x1 d1...d(y × x1)]...[xk d1...d(y × xk)]
	Decimal	27	38	y c1 c2 [x1 d1...d(y × x1)]...[xk d1...d(y × xk)]
[Range]	y = 3			
	$32 \leq c1 \leq c2 \leq 126$			
	$0 \leq x \leq 12$ standard ASCII style A(12×24)			
	$0 \leq x \leq 9$ compressing ASCII style B(9 × 17)			
	$0 \leq d1 \dots d(y \times xk) \leq 255$			
[Description]	Define user defined character			
	· y specify the vertical byte number			
	· c1 specify the code of initial character, c2 specify the code of terminal character.			
[Notice]	· x specify the vertical byte number			
	· The code range of defined character: from <20>H to <7E>H. (95 characters)			
	· Can define the continuous codes for several characters. When only one character is needed, c1=c2.			
	· d is the dot data of the character. Data of each dot begins from the left.			
	· Defining the data of user defined character is (y×x) bytes.			
	· Setting the printing dot's corresponding bit is 1 or nonprinting dot's one is 0.			
	· The user defined characters will be deleted in the following situation:			
	① ESC @ is carried out			
	② ESC ? is carried out			
	③ The printer reset or power off.			
	· Only the MSB is valid at the vertical third byte when the self defined characters are style B(9×17).			
[Default]	Built in character set.			

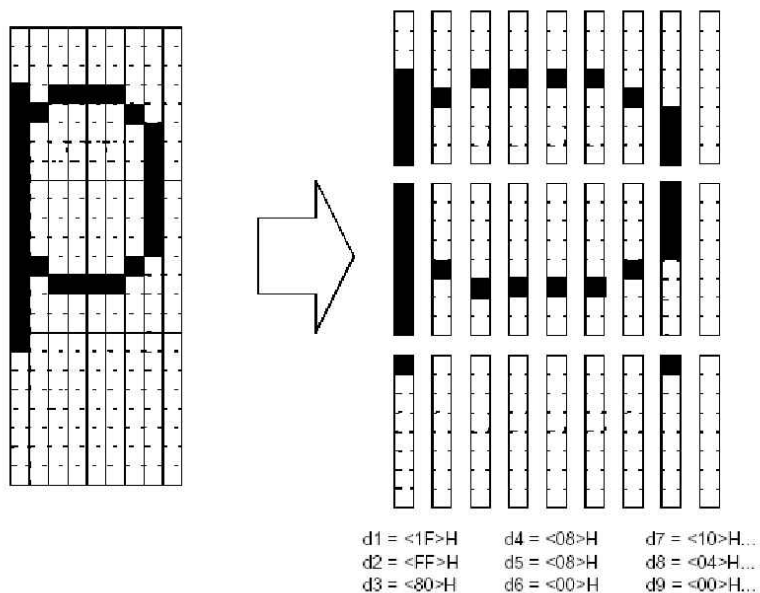
[Reference] ESC %, ESC ?

[Example] · When select the standard ASCII style(12×24)



· When select the compressing ASCII style (9×17)





ESC * m nL nH d1... dk

[Name] Selecting bit map mode

[Format] ASCII ESC * m nL nH d1...dk
 Hex 1B 2A m nL nH d1...dk
 Decimal 27 42 m nL nH d1...dk

[Range] m = 0, 1, 32, 33
 $0 \leq nL \leq 255$
 $0 \leq nH \leq 3$
 $0 \leq d \leq 255$

[Description] Selects a bit map mode appointed by m for the number of dots specified by nL and nH, as follows:

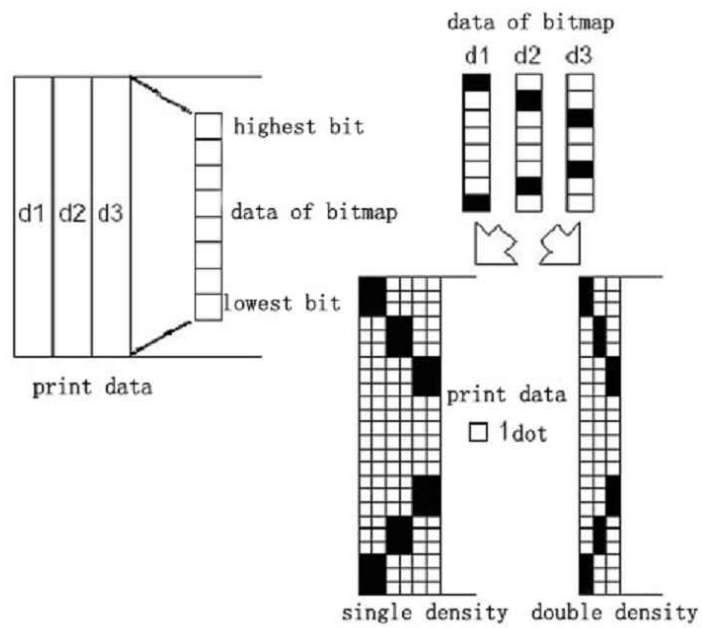
m	Mode	Vertical		Horizontal	
		dots	Dpi	Dpi	No.of datas (k)
0	8SD	8	68 DPI	101 DPI	$nL + nH \times 256$
1	8DD	8	68 DPI	203 DPI	$nL + nH \times 256$
32	24SD	24	203 DPI	101 DPI	$(nL + nH \times 256) \times 3$
33	24DD	24	203 DP	203 DPI	$(nL + nH \times 256) \times 3$

[Note] ·If the value of m goes beyond the range, nL and the datas later will be regarded as normal datas to deal with.

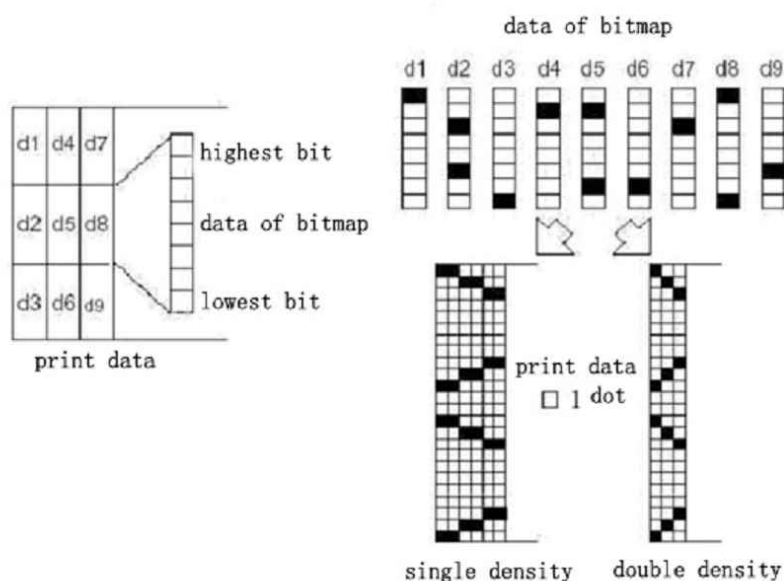
·The dots number of horizontal printing depends on nL and nH, total number is $nL + nH \times 256$.

·The part of the bit map that goes beyond the current area will be cut off

- d is the data of bit map. Printing when the relevant position of every byte is 1, and when it is 0, will not print this point.
- The printer will return to the mode of normal data processing after send the data of bit map.
- Except inversion mode, this command will not be influenced by other modes. (black, double print, underline, enlarge character and invert)
- Relationship between data and printing point is as below:
- choosing 8 dots density:



- choosing 24 dots density:



ESC - n

[Name] Select / cancelunderline

[Format] ASCII ESC - n
 Hex 1B 2D n
 Decimal 27 45 n

[Range] $0 \leq n \leq 2, 48 \leq n \leq 50$

[Description] Selecting or canceling the underline mode according to the value of n

n	Function
0, 48	Cancel underline mode
1, 49	Select underline mode(1 dot width)
2, 50	Select underline mode(2dots width)

[Notice]

- Underline can be added under all characters(including right spacing),but not including the space set by HT
- The underline can not act on the characters of clockwise 90 degrees and inverting
- The width of the underline will not be changed,and the character rest will not be Underlined whencancel the underline mode.The default width is 1dot width.
- Changing the character boundary will not influence the current underline width
- Selecting/canceling the underline can also be set by ESC!.However,the setting of the last received command is effective.
- The command doesn't affect the Chinese character setting.

[Default] n = 0

[Reference] **ESC !**

ESC 2

[Name]	Setting default height of line		
[Format]	ASCII	ESC	2
	Hex	1B	32
	Decimal	27	50
[Description]	Selecting 32 dots (4mm, about 1/7 inch) line height		
[Notice]	· Line height is independent under standard and page mode		
[Reference]	ESC 3		

ESC 3 n

[Name]	Setting the height of the line			
[Format]	ASCII	ESC	3	n
	Hex	1B	33	n
	Decimal	27	51	n
[Range]	$0 \leq n \leq 255$			
[Notice]	Setting [n*units of vertical or lateral shifting] inches as the height of the line			
[Notice]	· Setting the height of the line is mutual independence under standard and page mode.			
	· Units of vertical or lateral shifting are set by GSP, changing this setting will not influence current height of line			
	· Using vertical shifting units under standard mode			
	· According to the direction of printing area and the beginning position to select lateral or vertical shifting units under page mode. The selection modes are as below:			
	<ol style="list-style-type: none"> ① Using vertical shifting when the beginning position is the top left or lower right corner of the printing area which is set by ESC T; ② Using lateral shifting when the beginning position is the lower left or top right corner of the printing area which is set by ESC T; 			
	· The maximum distance of feeding paper is 1016mm(40 inches). If it is beyond this distance, taking the maximum distance.			
[Default value]	The default height of line is 4mm (about 1/6 inch)			
[Reference]	ESC 2, GS P			

ESC = n

[Name]	Selecting printer			
[Format]	ASCII	ESC	=	n
	Hex	1B	3D	n
	Decimal	27	61	n
[Range]	$0 \leq n \leq 1$			
[Description]	Selecting printer, the printer selected can receive the data sent by main computer:			

Bit	1/0	Hex	Decimal	Function
-----	-----	-----	---------	----------

0	0	00	0	Forbidding printer
	1	01	1	Permitting printer
1-7				Undefined

[Notice] · When the printer is forbidden, the printer ignores all the commands (DLEET, DLEENQ, DLEDC4) except real time command until the command is allowed.

[Default value] n = 1

ESC ? n

[Name] Cancel user self-defined character

[Format]

ASCII	ESC	?	n
Hex	1B	3F	n
Decimal	27	63	n

[Range] $32 \leq n \leq 127$

[Description] Cancel user self-defined character

[Note]

- Cancel the character code n of user self-defined character. The character use in character after cancelling.
- The command deletes from the matrix which is selected by the mould concentrates to the specified code of the selective ESC !
- The command is ignored if the self-defined characters have no the character.

[Reference] ESC &, ESC %

ESC @

[Name] Initializing the printer

[Format]

ASCII	ESC	@
Hex	1B	40
Decimal	27	64

[Description] Clearing the data in the printing buffer; The printing mode is set to the default

[Notice]

- The DIP switch set does not test again.
- Retaining the content in command buffer
- Retaining the macro definition
- Flash bit map is not erased
- Flash user data is not erased
- Servicing counter value is not erased
- The set value specified by GS(E) is not erased.

ESC D n1...nk NUL

[Name] Setting horizontal tab positions

[Format]

ASCII	ESC	D	n1... nk	NUL
Hex	1B	44	n1...nk	00
Decimal	27	68	n1...nk	0

[Range]	$1 \leq n_1 \leq n_2 \leq \dots \leq n_k \leq 255$ $0 \leq k \leq 32$
[Description]	Setting horizontal tab positions ·N specifies the column number for setting a horizontal tab position from the beginning of the line. ·There are k tab positions.
[Notice]	·Horizontal tab positions can be gotten by the following formula: The horizontal tab position is stored as a value of [characterwidth×n]measured from the beginning of the line.The character width includes the right side character spacing,and double width characters are set with twice the width of normal characters. ·This command cancels the previous horizontal tab settings. ·When setting n=8,the print position is moved to column 9 ·Up to 32 tab positions(k=32)can be set.Data exceeding32tab positions is processed as normal data ·Tab position is ordered by ascending and the end mark is NUL ·When[n]k is less than or equal to the preceding value[n]k-1,tab setting is finished and the following data is processed as normal data. ·ESC D NULcancels all horizontal tab positions. ·The previously specified horizontal tab positions do not change,even if the character width changes ·The character rwidth is independence under standard and page mode
[Default]	The default tab positions are at intervals of 8 characters for font A(12'24).
[Reference]	HT

ESC E n

[Name]	Select / Cancel bold font print
[Format]	ASCII ESC E n Hex 1B 45 n Decimal 27 69 n
[Range]	$0 \leq n \leq 255$
[Description]	Select / Cancel bold font print When the lowest bit of n is 0, cancel bold font print When the lowest bit of n is 1, select bold font print
[Notice]	·Only the lowest bit of n is effective. ·Selecting/canceling bold font print can also be set by ESC!.However,the setting of the last received command is effective.
[Default value]	n = 0
[Reference]	ESC !

ESC G n

[Name]	Selecting/canceling double print mode
[Format]	ASCII ESC G n

	Hex	1B	47	n
	Decimal	27	71	n
[Range]	$0 \leq n \leq 255$			
[Description]	Selecting/canceling double print mode ·When the lowest bit of n is 0,canceling double print mode ·When the lowest bit of n is 1,selecting double print mode			
[Note]	·Only the lowest bit of n is effective. ·The effect of this command is the same as bold font printing.			
[Default value]	n = 0			
[Reference]	ESC E			

ESC J n

[Name]	Printing and feeding paper			
[Format]	ASCII	ESC	J	n
	Hex	1B	4A	n
	Decimal	27	74	n
[Range]	$0 \leq n \leq 255$			
[Description]	Printing datas in print buffer and feeding paper for [n*units of vertial or lateral shifting]inches			
[Notice]	·The current print position will be set to the beginning of the line after printing. ·The ESC 2 and ESC 3 commands set does affect the feeding distance. ·Units of vertial or lateral shifting are set by GSP ·Using vertical shifting units under standard mode ·Accoridng to the direction of printing area and the beginning position to select vertical or lateral shifting units under page mode.The selection modes are as below: ① Usingverticalshiftingwhenthebeginningpositionisthetopleftorlowerright corneroftheprintingareawhichissetbyESC T; ② Using lateral shifting when the beginning position is the lower left or top right corner of the printing area which is set by ESC T; · The maximum distance of feeding paper is 1016mm(40inches).If it is beyond this distance,taking the maximum distance.			
[Reference]	GS P			

ESC M n

[Name]	Select font			
[Format]	ASCII	ESC	M	n
	Hex	1B	4D	n
	Decimal	27	77	n
[Range]	n = 0, 1,48, 49			
[Description]	select font			
	n	Function		

0,48	select standard ASCIIstyle(12*24)
1,49	select compressing ASCII style (9*17)

[Default value] n = 0

ESC R n

[Name] Selecting international character set

[Format]	ASCII	ESC	R	n
	Hex	1B	52	n
	Decimal	27	82	n

[Range] $0 \leq n \leq 15$

[Description] Selecting an international character set from the table below

n	Character Set
0	U.S.A.
1	France
2	Germany
3	U.K.
4	Denmark I
5	Sweden
6	Italy
7	Spain I
8	Japan
9	Norway
10	Denmark II
11	Spain II
12	Latin
13	Korea
14	Slovenia/Croatia
15	China

[Default] n = 15 [GBK]

n = 0 [the model except GBK]

[Reference]

ESC V n

[Name] Selecting/canceling character 90 clockwise.

[Format]	ASCII	ESC	V	n
	Hex	1B	56	n
	Decimal	27	86	n

[Range] $0 \leq n \leq 1, 48 \leq n \leq 49$

[Description] Selecting/canceling character 90 clockwise

Value of n:

n	Function
---	----------

0, 48	canceling character 90clockwise
1, 49	selecting character 90clockwise

- [Notice] ·This command is just effective under standard mode.
 ·The underline will be not 90 clockwise when select the underline mode.
 ·The double height and double width under 90 clcokwise are in opposite direction with the munder the normal mode.
- [Default value] n = 0
- [Reference] **ESC !**, **ESC -**

ESC \ nL nH

- [Name] Setting relative printing position
- [Format]
- | | | | |
|---------|-------|----|-------|
| ASCII | ESC \ | nL | nH |
| Hex | 1B | 5C | nL nH |
| Decimal | 27 | 92 | nL nH |
- [Range] $0 \leq nL \leq 255$ $0 \leq nH \leq 255$
- [Description] Sets the lateral relative position based on the current position by using the Horizontal or vertical motion unit
 ·This command sets the distance from the current position to $n[(nL+nH \times 256)\text{horizontal motion unit}]$
- [Notice] ·Any setting that exceeds the printable area is ignored.
 ·When printing position moves to the right: $nL+nH \times 256 = N$.
 ·When printing position moves to the left,using radix complement: $nL+nH \times 256 = 65536 - N$.
 ·The print starting position moves from the current position to $[N \times \text{horizontal motion unit}]$
 ·Vertical and horizontal motion units are set by GSP command.
 ·Horizontal motion units are used under standard mode.
 ·Under page mode,selecting to use horizontal or vertical motion units according to the direction of printing area and zero position.
 The system of selection is as below:
- ① Using horizontal shifting when the beginning position is the top left or lower right corner of the printing area which is set by ESC T;
 - ② Using vertical shifting when the beginning position is the lower left or top right corner of the printing area which is set by ESC T
- [Reference] **ESC \$**, **GS P**

ESC a n

- [Name] Selecting alignment mode
- [Format]
- | | | | |
|---------|-----|----|---|
| ASCII | ESC | a | n |
| Hex | 1B | 61 | n |
| Decimal | 27 | 97 | n |
- [Range] $0 \leq n \leq 2, 48 \leq n \leq 50$

[Description] Making all the printing datas array in appointed alignment
Relationship between value of n and alignment are as below:

n	Alignment
0,48	Alignleft
1, 49	Aligncenter
2, 50	Alignright

[Notice] ·This command is just available at the zero position of the line and under Standard mode.
·This command just changes the internal mark position under page mode.
·This command revises the blank area according to HT,ESC\$ or ESC\.

[Default value] n = 0

[Example]

left alignment	centered	right alignment
<div style="border: 1px solid black; padding: 5px;"> ABC ABCD ABCDE </div>	<div style="border: 1px solid black; padding: 5px;"> ABC ABCD ABCDE </div>	<div style="border: 1px solid black; padding: 5px;"> ABC ABCD ABCDE </div>

ESC c 5 n

[Name] Permiting/Forbiding keystoke

[Format]	ASCII	ESC	c	5	n
Hex	1B	63	35	n	
Decimal	27	99	53	n	

[Range] $0 \leq n \leq 255$

[Description] Permiting/Forbiding keystoke.

·When the lowest bit of n is 0,keystoke works
·When the lowest bit of n is 1,keystoke is forbidden.

[Notice] ·Only the lowest bit of n is effective.
·When the keystoke is forbidden,it does not work
·When carrying out the macro command,keystoke works all the time,but can not feed paper by it

[Default value] n = 0

ESC d n

[Name] Printing and feeding paper forward for n lines

[Format]	ASCII	ESC	d	n
Hex	1B	64	n	
Decimal	27	100	n	

[Range] $0 \leq n \leq 255$

[Description] Printing the datas in print buffer and feeding paper forward for n lines(character row)

[Notice] ·This command sets the loading position at the beginning of the row

- This command does not influence the line space which is set by ESC 2 or ESC 3
- The maximum distance of feeding paper is 1016mm.If it is beyond this distance,taking the maximum distance.

[Reference] **ESC 2, ESC 3**

ESC t n

[Name] Selecting character code table

[Format]	ASCII	ESC	t	n
Hex		1B	74	n
Decimal		27	116	n

[Range] $0 \leq n \leq 255$

[Description] Selecting code page n from character code table.Selection of n are as below:

N	Code Page
0	CP437 [U.S.A., Standard Europe]
1	Katakana
2	PC850 [Multilingual]
3	PC860 [Portuguese]
4	PC863 [Canadian-French]
5	PC865 [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 1
27	CP720[Arabic]
28	CP855
29	CP857[Turkish]

30	WCP1250[Central Eurpoe]
31	CP775
32	WCP1254[Turkish]
33	WCP1255[Hebrew]
34	WCP1256[Arabic]
35	WCP1258[Vietnam]
36	ISO-8859-2[Latin 2]
37	ISO-8859-3[Latin 3]
38	ISO-8859-4[Baltic]
39	ISO-8859-5[Cyrillic]
40	ISO-8859-6[Arabic]
41	ISO-8859-7[Greek]
42	ISO-8859-8[Hebrew]
43	ISO-8859-9[Turkish]
44	ISO-8859-15 [Latin 3]
45	Thai2
46	CP856

[Default value] n = 0

[Reference]

ESC { n

[Name] Selecting/canceling invert printing mode

[Format]	ASCII	ESC	{	n
	Hex	1B	7B	n
	Decimal	27	123	n

[Range] $0 \leq n \leq 255$

[Description] Selecting/canceling invert printing mode

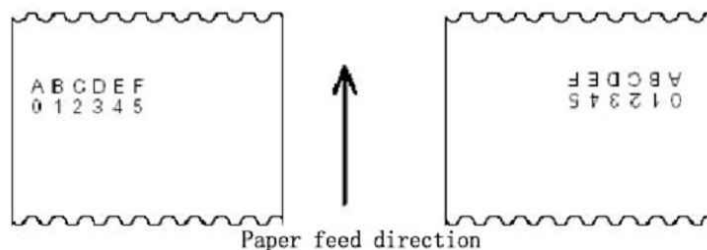
- When the lowest bit of n is 0,canceling invert printing mode
- When the lowest bit of n is 1,selecting invert printing mode.

[Notice] ·Only the lowest bit of n is effective.

- The command is just effective on the beginning of the line under standard mode.
- The command just changes internal marker bit under page mode.
- The command has no effect on the printing of page mode.
- Under invert printing mode,the printer will whirl the line of being printed for 180 degree.

[Default value] n = 0

[Example]



FS P n

[Name] Printing the prestored bit map

[Format]	ASCII	FS	P	n
	Hex	1C	50	n
	Decimal	28	80	n

[Range] $0 \leq n \leq 7$

[Description] This command prints the 2 value bit map which is prestored in the printer and not easily lost. The bit map in memory which is not easily lost can be produced and written by the tool in PC. The maxwidth is 576dots, and maxheight is 910 dots. N is the destination bit map code.

[Notice]

- . Before the destination bit map code has not been defined, this command is not available.
- . The bit map must be the 2 value bit map
- . This command will not be influenced by printing mode (bold, overlap, underline, character dimension or inverse print).
- . If the width of being printed beyond one line, the out profile will not be printed.
- . It needs special purpose tools to print the downloaded bit map. Please see (T9 set tool software). The bit map by this mode does not lose unless download other bitmap to cover it.

GS ! n

[Name] Selecting character boundary

[Format]	ASCII	GS	!	n
	Hex	1D	21	n
	Decimal	29	33	n

[Range] $0 \leq n \leq 255$

($1 \leq \text{longitudinal magnification multiple} \leq 8$, $1 \leq \text{lateral magnification multiple} \leq 8$)

[Description] Using 0 to 2 bits to select character height, 4 to 7 bits to select character width
As follows:

Bit	0/1	Hex	Decimal	Function
0-3				Selecting character width, see table1
4-7				Selecting character height, see table2

Table 1

Selecting character height

Hex	Decimal	longitudinal magnification
00	0	1 (normal)
01	1	2 (double width)
02	2	3
03	3	4
04	4	5
05	5	6
06	6	7
07	7	8

Table 2

Selecting character width

Hex	Decimal	lateral magnification;
00	0	1 (normal)
10	16	2 (double height)
20	32	3
30	48	4
40	64	5
50	80	6
60	96	7
70	112	8

- [Notice] · This command is effective to all the characters (ASCII and Chinese characters) except HR characters
- If n is out of the range, this command will be neglected.
 - Under standard mode, portrait is the direction of feeding paper, landscape is perpendicular to the direction of feeding paper. But when the character rotates 90 degree clockwise, portrait and landscape are reversed
 - Portrait and landscape under page mode depend on the direction of the area.
 - All the character are aligned baseline when the character of the same line enlarge different times
 - Selecting/canceling the double width and double height of the character can also be set by ESC ! command. However, the setting of the last received command is effective.

[Default value] n = 0

[Reference] ESC !

GS * x y d1...d(x × y × 8)

[Name] Defining downloaded bit map

[Format]	ASCII	GS	*	x	y	d1...dk
	Hex	1D	2A	x	y	d1...dk
	Decimal	29	42	x	y	d1...dk

[Range] $1 \leq x \leq 255, 1 \leq y \leq 48$

$x \times y \leq 1536$

$0 \leq d \leq 255$

$k = x \times y \times 8$

[Description] Use appointed bit number by x and y to define the downloaded bit map

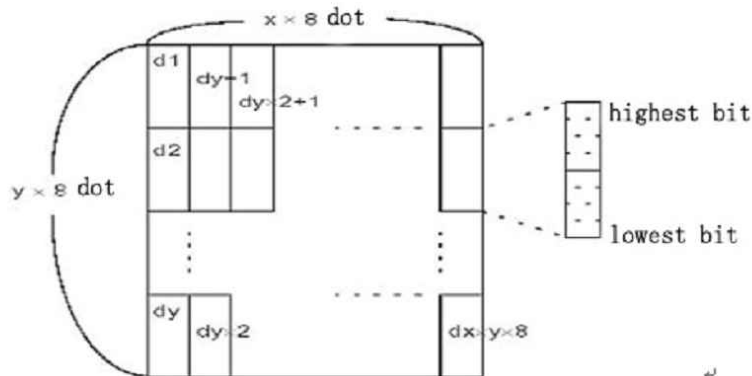
- x is the dot number of horizontal
- y is the dot number of vertical
- d is data of specified bit map

[Notice] · x*8 is the dot number of horizontal.; y*8 is the dot number of vertical.

- If $x \times y$ is of flimit,then the command is forbidden.
- d means the image data. lprint,0 not print
- In the following circumstances, clear the definition of downloaded bit image.:
 - ① carry out ESC@ command
 - ② Power off or reset

Relationship between print data and download bit map is as below:

[Reference] **GS /**



GS / m

[Name] Printing downloaded bi tmap

[Format] ASCII GS / m
 Hex 1D 2F m
 Decimal 29 47 m

[Range] $0 \leq m \leq 3, 48 \leq m \leq 51$

[Description] Printing mode is appointed by m when print a bit map

m printing mode selections are as below:

m	mode	vertical (DPI)	horizontal (DPI)
0, 48	normal	203	203
1, 49	Double width	203	101
2, 50	Double height	101	203
3, 51	Double width and height	101	101

- [Notice]
- This command will be ignored if the downloaded bit map is not defined.
 - The command is effective only when the reisno data in the printing buffer under standard mode
 - Except inversion mode,other modes have no effect on it(include bold、 double print、 underline、 enlarge font and invert printing, etc.
 - The out profile will not be printed if the bit map out of the range.
 - This command prints the bit map downloaded in RAM but not Flash.

[Reference] **GS ***

GS B n

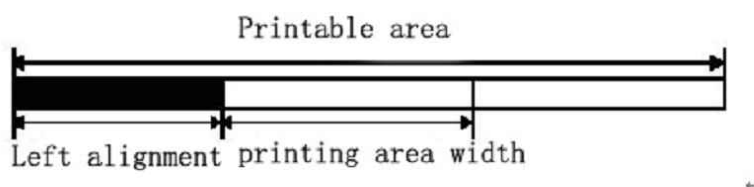
[Name]	Selecting/canceling black white revert printing mode			
[Format]	ASCII	GS	B	n
	Hex	1D	42	n
	Decimal	29	66	n
[Range]	$0 \leq n \leq 255$			
[Description]	Selecting/canceling black white revert printing mode			
	·When the lowest bit of n is 0,canceling black white reverse printing mode.			
	·When the lowest bit of n is 1,selecting black white reverse printing mode.			
[Notice]	· Only the lowest bit of n is effective			
	·This command is available to all the characters (except HRI characters)			
	·After selecting black white reverse printing,the space between characters which is set by ESC SP command is also reversing.			
	·This command does not influence bit map,user defined bit map,barcode,HRI character and blank space which is set by HT,ESC \$ and ESC\			
	·This command does not influence the blank space between lines.			
	·Priority of black white reverse printing mode is higher than it of underline mode.When selecting black white reverse printing mode,underline mode is not effective.It will be effective after canceling black white reverse printing mode.			
[Default value]	n = 0			

GS H n

[Name]	Selecting the printing position of HRI character			
[Format]	ASCII	GS	H	n
	Hex	1D	48	n
	Decimal	29	72	n
[Range]	0 ≤ n ≤ 3, 48 ≤ n ≤ 51			
[Description]	When printing the barcode,selecting the printing position for HRI character			
	N appoints the printing position of HRI			
	n	Printing position		
	0, 48	No printing		
	1, 49	Above the barcode		
	2, 50	Below the barcode		
	3, 51	Both above and below the barcode		
	·HRI is the character of content note of barcode			
[Note]	·The style of HRI character is appointed by GSf.			
[Defaultvalue]	n = 0			
[Reference]	GS f, GS k			

GS L nL nH

[Name]	Setting left margin				
[Format]	ASCII	GS	L	nL	nH
	Hex	1D	4C	nL	nH
	Decimal	29	76	nL	nH
[Range]	$0 \leq nL \leq 255$				
	$0 \leq nH \leq 255$				
[Description]	Setting left margin by nL and nH				
	Setting left margin at $[(nL+nH \times 256) \times \text{horizontal motion unit}]$ inches.				



- [Notice]
- This command is just available at the zero position of the line and under standard
 - It is not available under page mode, the printer will handle it as normal datas
 - This command does not influence the printing under page mode
 - Taking the Maxwidth is it goes beyond the max printing width
 - Vertical and horizontal motion units are set by GSP. Changing the motion will not influence the current left margin.

[Default value] nL = 0, nH = 0

[Reference] GS P, GS W

GS P x y

[Name]	Setting horizontal and vertical motion units				
[Format]	ASCII	GS	P	x	y
	Hex	1D	50	x	y
	Decimal	29	80	x	y
[Range]	$0 \leq x \leq 255$				
	$0 \leq y \leq 255$				
[Description]	Setting horizontal motion units as near 25.4/xmm (1/x inch) Setting vertical				
	Motion units as near 25.4/ymm (1/y inch)				
[Notice]	When x and y are all 0, x and y are setting as default value				
	Direction is perpendicular to the feeding is horizontal, the feeding direction is vertical				
	Under standard mode, making the character whirl by x or y (does not change if invert or clockwise rotates 90API)				
	① Using x command: ESC SP, ESC \$, ESC \, GS L, GS W				

② Using y command: ESC 3, ESC J, GS V

· Under page mode, according to the direction of printing and the starting position to use x or y

① When the starting position is set as top left corner or lower right by ESC T:

Using x command: ESC SP, ESC \$, ESC W, ESC \, FS S

Using y command: ESC 3, ESC J, ESC W, GS \$, GS \, GS V

② When the starting position is set as top right corner or lower left by ESC T:

Using x command: ESC 3, ESC J, ESC W, GS \$, GS \

Using y command: ESC SP, ESC \$, ESC W, ESC \, FS S, GS V

· This command does not influence other settings set before

· The minimum motion distance is the result of combined action of this and other commands

· a inch=25.4mm

[Default value] x=203, y=203, now a motion unit is a printing dot. Horizontal motion distance is 1/8mm, and vertical motion distance is 1/8mm.

[Reference] ESC SP, ESC \$, ESC 3, ESC J, ESC W, ESC \, GS \$, GS L, GS V, GS W, GS \

① GS V m ② GS V m n

[Name] Select cutting mode and cut paper

[Format]	① ASCII	GS	V	m
	Hex	1D	56	m
	Decimal	29	86	m
	② .ASCII	GS	V	m n
	Hex	1D	56	m n
	Decimal	29	86	m n

[Range] ① m = 0, 48, 1, 49

② m = 66, 0 ≤ n ≤ 255

[Description] Select one cutting mode and cut paper.

Select cutting mode according to the value of m, as follows:

m **cutting mode**

0, 1, 48, 49 half cutting

66

Feed paper (cutting position+[n*(vertical shifting unit)inch])
and half cutting paper.

[Notice①and②]

· This command does effect only at the beginning of line.

[Notice②] · m = 0, 48, 1, 49, The printer cuts directly.

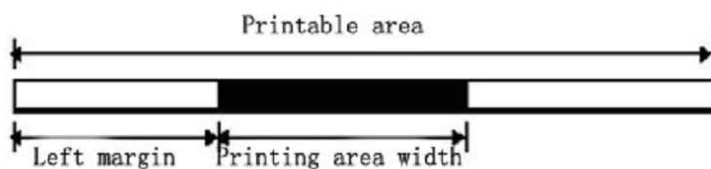
· When m = 66 The printer feed paper [the distance from printing position to cut +n*(vertical motion unit)] then cut paper.

· The lateral and vertical shifting unit are set by the command GS P.

· The number of feeding paper is computed by vertical motion unit

GS W nL nH

[Name]	Setting the width of printing area				
[Format]	ASCII	GS	W	nL	nH
	Hex	1D	57	nL	nH
	Decimal	29	87	nL	nH
[Range]	$0 \leq nL \leq 255$				
	$0 \leq nH \leq 255$				
[Description]	Setting the width of printing area by nL and nH				
	·Setting width of printing area to $[(nL + nH \times 256) \times \text{horizontal motion unit}]$ inches.				



[Notice]	·This command is just available at the zero position of the line and under standard mode.				
	·It is not available under page mode,the printer will handle it as normal datas				
	·This command does not influence the printing under page mode.				
	·If [left margin+width of printing area]goes beyond the print able area,the width of printing is it of[printable area width-left margin]				
	·Vertical and horizontal motion units are set by GSP.Changing them will not Influence the current left margin and area width				
	·Using horizontal motion units to count the width of printing area				
[Default value]	nL = 64, nH = 2				
[Reference]	GS L, GS P				

GS f n

[Name]	Selecting font of HRI used			
[Format]	ASCII	GS	f	n
	Hex	1D	66	n
	Decimal	29	102	n
[Range]	n = 0, 1, 48, 49			
[Description]	When printing barcode,selecting a style for HRI character			
	Selecting style by n is as below:			
	n	Style		
	0,48	Standard ASCII (12 × 24)character(12×24)		
	1,49	Compressed ASCII character(9 × 17)		

[Notice]	·HRI character is the note of barcode content
----------	---

·HRI character printing position is set by GSH command

[Default value] n = 0

[Reference] GS H, GS k

GS h n

[Name] Selecting height of barcode

[Format]	ASCII	GS	h	n
	Hex	1D	68	n
	Decimal	29	104	n

[Range] $1 \leq n \leq 255$

[Description] Selecting height of barcode
The height of barcode is n dots

[Default value] n = 162

[Reference] GS k

①GS k m d1...dk NUL②GS k m n d1...dn

[Name] Printing barcode

[Format]	①ASCII	GS	k	m	d1...d k	NUL
	Hex	1D	6B	m	d1...d k	00
	Decimal	29	107	m	d1...d k	0
	②ASCII	GS	k	m	n	d1... dn
	Hex	1D	6B	m	n	d1... dn
	Decimal	29	107	m	n	d1... dn

[Range] ① $0 \leq m \leq 6$ (Value range of k and d is decided by its type)

② $65 \leq m \leq 73$ (Value range of k and d is decided by its type)

[Description] Selecting a kind of barcode and printing

m is used to select type of barcode,as follows:

m	Barcode type	Number of character	d
① 0	UPC-A	$11 \leq k \leq 12$	$48 \leq d \leq 57$
1	UPC-E	$11 \leq k \leq 12$	$48 \leq d \leq 57$
2	JAN13 (EAN13)	$12 \leq k \leq 13$	$48 \leq d \leq 57$
3	JAN 8 (EAN8)	$7 \leq k \leq 8$	$48 \leq d \leq 57$
4	CODE39	$1 \leq k \leq 255$	$45 \leq d \leq 57,$ $65 \leq d \leq 90,$ $32, 36, 37, 43$
5	ITF	$1 \leq k \leq 255$	$48 \leq d \leq 57$

6	CODABAR	$1 \leq k \leq 255$	$48 \leq d \leq 57,$ $65 \leq d \leq 68,$ 36, 43, 45,46,47,58
② 65	UPC-A	$11 \leq n \leq 12$	$48 \leq d \leq 57$
66	UPC-E	$11 \leq n \leq 12$	$48 \leq d \leq 57$
67	JAN13 (EAN13)	$12 \leq n \leq 13$	$48 \leq d \leq 57$
68	JAN 8 (EAN8)	$7 \leq n \leq 8$	$48 \leq d \leq 57$
69	CODE39	$1 \leq n \leq 255$	$45 \leq d \leq 57,$ $65 \leq d \leq 90,$ 32, 36, 37,43 $d1 = dk = 42$
70	ITF	$1 \leq n \leq 255$	$48 \leq d \leq 57$
71	CODABAR	$1 \leq n \leq 255$	$48 \leq d \leq 57$ $65 \leq d \leq 68,$ 36, 43,45,46,47 58
72	CODE93	$1 \leq n \leq 255$	$0 \leq d \leq 127$
73	CODE128	$2 \leq n \leq 255$	$0 \leq d \leq 127$

[Notice ①]

- This command is ended by NULL under this format
- When selecting code of UPC-A or UPC-E, after receiving 12 bytes data, printer will handle the rest as normal character
- When selecting type of JAN13(EAN13), after receiving 13 bytes data, printer will handle the rest as normal character
- When selecting type of JAN8(EAN8), after receiving 8 bytes data, printer will handle the rest as normal character
- Number of ITF code data must be even number. If entering code data of odd number, the last data will be ignored

[Notice ②]

- N is used to appoint the number of pointing barcode data. The printer will handle then byte data follow as barcode data
- If n goes beyond the specified range, the printer will not handle this command, and handle the data following as normal data

[Notice(Standard mode)]

- If the barcode d goes beyond the specified range, this command is invalid.
- If the cross wise of barcode goes beyond printing area, invalid
- No matter what is the height set by ESC 2 or ESC 3, the distance of feeding paper is the same as the height of barcode.
- This command only available when there is no data in printing buffer, if not, the command will be ignored.
- The printing position will be set at the beginning of the line after printing the barcode.

·Other mode setting(bold,double printing,underline,character dimension,inverse and character clockwise rotates 90 degree)can not influence this command except

Inversion mode

[Notice(page mode)]

·This command just produces the barcode figure in printing buffer,but not print.Moving the printing position to the right of the barcode after handling the barcode data.

·If the d goes beyond the specified range,this command will be ignored.

·If the width of the barcode goes beyond the printing area,this command will be ignored

When selecting CODE128(m=73):

·Referring appendix A, related information of CODE128 and character set

·When using CODE128,encoding according to the description following

- ① Selecting character set before barcode data (CODE A、CODE B or CODE C)
- ② Selecting character set according to sending character “{” and combine with another character;ASCII character“{” is finished by sending character “{” for twice.

Appointing		Sending data	
Character	ASCII	Hex	Decimal
SHIFT	{S	7B, 53	123, 83
CODE A	{A	7B, 41	123, 65
CODE B	{B	7B, 42	123, 66
CODE C	{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] Printing“No.123456”

Using CODE B to print“No.”, and then using CODE C to print the digital rest

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



·If it is not character set selection at the beginning of barcode data,the printer will stop handling this command, and handling the rest data as normal data

·If“{”and the character close behind is not the combination as above,the printer will stop handling this command, and handling the rest data as normal data.

·If the character is not the data of barcode character set,the printer will stop handling this command, and handling the rest data as normal data.

·When printing HRI character,not printing shift character and character set selection data

·HRI character of function character is not printed

·HRI character of control character (<00>Hto<1F>Hand<7F>H) is not printed

<Others> Ensure the left and right space of barcode.Space is different because of different barcode

style.

[Reference] GS H, GS f, GS h, GS w, appendix A

GS w n

[Name] Setting the width of barcode

[Format]	ASCII	GS	w	n
	Hex	1D	77	n
	Decimal	29	119	n

[Range] $2 \leq n \leq 6$

[Description] Setting width of barcode horizontal module

Appointing the barcode horizontal module by n

n	Mono basis module width (mm)	Biradical module width	
		Narrow-based module (mm)	Wide-based module (mm)
2	0.25	0.25	0.625
3	0.375	0.375	1.0
4	0.5	0.5	1.25
5	0.625	0.625	1.625
6	0.75	0.75	1.875

·Barcode of mono basis module is as below:

UPC-A, UPC-E, JAN13 (EAN13), JAN8 (EAN8), CODE93, CODE128

·Barcode of biradical module is as below:

CODE39, ITF, CODABAR

[Defaultvalue] n = 2

[Reference] GS k

The Chinese characters controlling commands

FS ! n

[Name] Setting Chinese characters mode

[Format]	ASCII	FS	!	n
	Hex	1C	21	n
	Decimal	28	33	n

[Range] $0 \leq n \leq 255$

[Description] Using value of n to set the printing mode of Chinese characters

Bit	0/1	Hex	Decimal	Function
0, 1				Undefined
2	0	00	0	Canceling double width
	1	04	4	Selecting double width
3	0	00	0	Canceling double height

	1	08	8	Selecting double height
4-6				Undefined
7	0	00	0	Canceling underline
	1	80	128	Selecting underline

- [Notice]
- When double width and double height are set together,portrait and landscape will be larged two times together(including left and right space).
 - Printer can add underline to all the characters,including left and right space.But can not add underline to the space caused by HT command (horizontaltab),either the 90 degree clockwise characters.
 - The width of underline is set by FS,has no relation to the character boundary
 - When the height of the character in one line is not the same,all the characters Align the base line
 - Using FS WandGS !can make the characters bold,the setting of the last received command is effective.
 - Also can use FS to select or cancel the underline,the setting of the last received command is effective.

[Default value] n = 0

[Reference] **FS - , FS W, GS !**

FS &

[Name] Selecting Chinese character mode

[Format]	ASCII	FS	&
	Hex	1C	26
	Decimal	28	38

[Description] Selecting Chinese character mode

[Notice] ·When select Chinese character mode,printer will judge whether the character is Hanzi interal code,if it is,dealing with the first byte in advance.Then the second one.

·After powering up,the printer will select Chinese character mode by itself.

[Reference] **FS . , FS C**

FS - n

[Name] selecting/canceling Chinese underline mode

[Format]	ASCII	FS	-	n
	Hex	1C	2D	n
	Decimal	28	45	n

[Range] $0 \leq n \leq 2, 48 \leq n \leq 50$

[Description] selecting or canceling Chinese underline according to value of n

n	Function
0, 48	canceling Chinese underline
1, 49	selecting Chinese underline (1 dot width)

2, 50 selecting Chinese underline (2dots width)

[Note] ·Printer can add underline to all the characters,including left and right space.But
Can not add underline to the space caused by HT command(horizontal tab),either the 90
degree clockwise characters.
·It does not carry out the underline printing after canceling underline mode, but the previous
set does not change. The default underline width is 1dot.
·The underline width does not change even if changing the character dimension.
·Can use FS ! to select or cancel the underline,the setting of the last received
command is effective

[Default value] n = 0

[Reference] **FS !**

FS .

[Name] canceling chinese mode

[Format] ASCII FS .
Hex 1C 2E
Decimal 28 46

[Description] canceling chinese mode

[Notice] ·When the Chinese mode is canceled, all the characters are the same as ASCII style, and
deal with one byte once.
·Selecting Chinese mode when power on.

[Reference] **FS &, FS C**

FS 2 c1 c2 d1...dk

[Name] defining user self-defined Chinese

[Format] ASCII FS 2 c1 c2 d1...dk
Hex 1C 32 c1 c2 d1...dk
Decimal 28 50 c1 c2 d1...dk

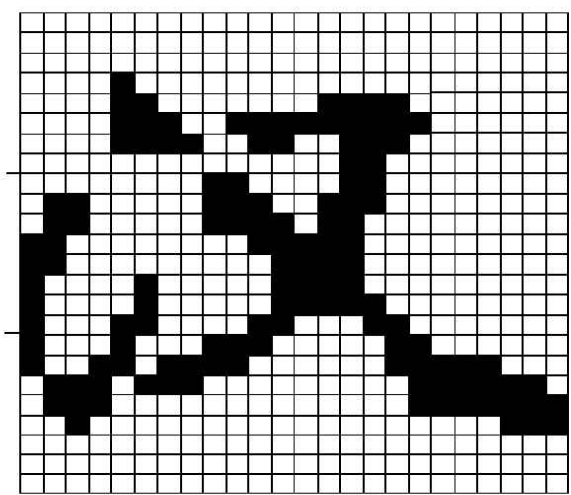
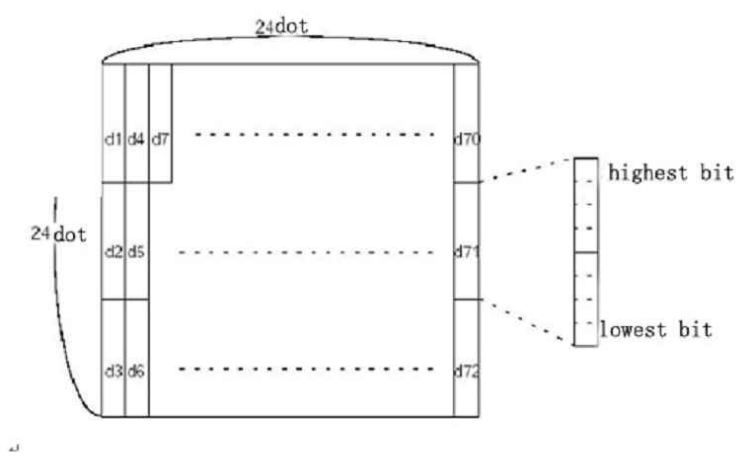
[Range] c1, c2 represent the code of defined characters.
c1 = FEH
 $A1H \leq c2 \leq FEH$
 $0 \leq d \leq 255$
k = 72

[Description] Defining the Chinese specified by c1, c2.

[Notice] · C1, c2 represent user self-defined Chinese code, c1 specifies the first byte, c2 specifies the
second byte.
· D represent data. Every bit of byte is 1 represents to print the dot, 0 means does not print.
·It can define 10 chinese the most.

[Default value] no self-defined Chinese

The relation between self-defined Chinese font and data as follows:



D1=00H, D4=00H, D7=00H, D10=00H.....
D2=1FH, D5=76H, D8=60H, D11=00H.....
D3=00H, D6=30H, D9=36H, D12=70H.....

FS C n					
[Name]	selecting Chinese code system				
[Format]	ASCII	FS	C	n1	n2
	Hex	1C	43	n1	n2
	Decimal	28	67	n1	n2
[Range]	n=0, 1, 48, 49				
[Description]	selecting Chinese code system				
	n	selecting Chinese code system			

	0, 48	Simplified Chinese (GB2312或GB18030)
	1, 49	Traditional Chinese-TC (BIG5)
[Notice]	<ul style="list-style-type: none"> The command does not change the parameter set of flash It returns to default after carried out ESC @ command、power off or reset. 	
[Default value]	n = 0 Simplified Chinese model. n = 1 Traditional Chinese-TC model	

FS S n1 n2

[Name]	Setting the left and right space of Chinese character				
[Format]	ASCII	FS	S	n1	n2
	Hex	1C	53	n1	n2
	Decimal	28	83	n1	n2
[Range]	$0 \leq n1 \leq 255$				
	$0 \leq n2 \leq 255$				
[Description]	Setting the space of left and right are n1, n2. When the printer have GSP command, the left space is[n1*lateral or vertical motion unit]inch,the right space is[n2*lateral or vertical motion unit]inch.				
[Notice]	<ul style="list-style-type: none"> The left and right space will be doubled after setting the double width mode. The shifting unit is setted by the command GS P.The former character space does not change even if the lateral and vertical units are changed. Using the lateral shifting unit under the standard mode. Selecting to use the lateral or vertical shifting unit according to the printing area under page mode. <ol style="list-style-type: none"> Using horizontalshifting when the beginning position is the top left or lower right corner of the printing area Using vertical shifting when the beginning position is the lower left or top right corner of the printing area The maximum distance of Chinese is36mm.If it is beyond this distance,taking the maximum distance. 				
[Default]	n1 = 0, n2 = 0				
[Reference]	GS P				

FS W n

[Name]	selecting/canceling Chinese double height or width			
[Format]	ASCII	FS	W	n
	Hex	1C	57	n
	Decimal	28	87	n
[Range]	$0 \leq n \leq 255$			
[Default]	Selecting/canceling Chinese double width mode			
	Cancelchinese double width mode when the lowest bit is 0			
	Select Chinese double width mode when the lowest bit is 1.			
[Notice]	only the lowest bit of n is effective.			

- To print chinese dimension under double width mode is the same as to select both double width and double height.
- The Chinese dimension is printed normally after cancelling the Chinese double width mode.
- When the height of the character in one line is not the same,all the characters align the baseline
- Also using FS! or GS! can select or cancel Chinese double height and width mode, the setting of the last received command is effective.

[Default] n = 0

[Reference] **FS !, GS !**

Appendix A: 128 code

A.1 128 code summary

128code can code 128 ASCII characters and 100 numbers from 00~99 and some special character by crossing using of character set A, B and C. Character of every character set code is as below:

Character set A: ASCII character from 00H to 5FH

Character set B: ASCII character from 20H to 7FH

Character set C: 100 numbers from 00~99

128 code can also code to the special character below:

SHIFT character

“SHIFT” can make barcode character the first character after SHIFT character transfer from character set A to B, or B to A, back to the character set used before SHIFT. “SHIFT”

Character can only be used to transform between character set A and B, it can not make the current code character enter or quit state of character set C.

Selecting character of character set (CODE A, CODE B, CODE C)

These characters can transform the coding character followed to character set A, B or C.

Function character (FNC1, FNC2, FNC3, FNC4)

Usage of these function character is determined by application software. Only FNC1 can be used in character set C.

A.2 Character sets

Character in set A

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

Character in set B

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

Character in set C

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

Appendix B: Printing mode and its transformation

B.1 Summary

The printer has two kinds the printing mode: standard mode and page mode. Under standard mode, the printer will print and feed paper if only the printing buffer area is full or receiving command of printing or feeding. But under page mode, all the printing data and feeding command will be stored in the appointed memory space, the printer does not carry out and

operation until receiving command of ESC FF. For FF, the printer will print all of the content in printing area.

Forexample: When the printer receiving "ABCDEF"<LF> under standard mode, it will print out "ABCDEF" immediately and feed a line of paper. But under page mode, the printer will

write "ABCDEF" in printing area of memory, the printing data followed will be put in next line of

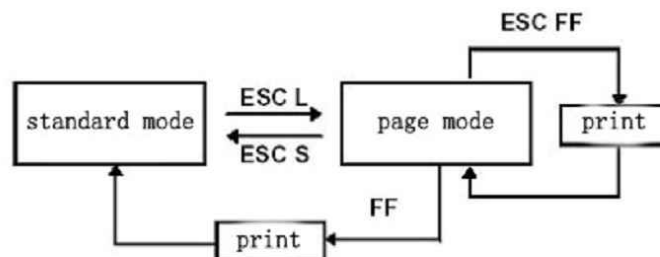
printing area. ESC L command switches the printer to page mode, all the data followed will be

handled under page mode. Carrying out ESC FF command like this can print out all data

received. But carrying out FF command not only prints out all the data received but switches

the printer to standard mode. Carrying out ESC S command can also switch the printer to

standard mode, but it does not print data received under page mode, and clear these data.



Picture B.1 Switching between standard mode and page mode

B. 2 Setting various value under standard mode and page mode

- 1) Some commands (such as: ESC SP, ESC 2, ESC 3) can be used not only under Standard mode but also page mode, and their parameters are also same. But settings under the two modes are independent, they are stored separately.

B. 3 Setting printing area

- 1) Printing area is set by ESCW. If all the printing and feeding operation has been Finished before receiving ESCW, then the left side of printer (when you facing it) is

as the

Origin of coordinate(x0,y0)of printing area.Width(dx point)of the rectangle printing area

Expands to right for morigin of coordinate(x0,y0) on x direction,height(dy point)is on y

direction(feeding direction).If not setting printing area by ESCW,then the printing area

adopts default value.

- 2) After setting printing area and its direction(byESCT),the data received will array in printing area as the positions in picture B.2,A is the zero position of printing area,this is the default value.(Apoint is the base line when a character is printed) The download bit map or barcode data of printing character makes the current positon as it slower left corner(B point in pictureB.3),aligning with base line
- 3) Before receiving a command(suchasLForESCJ)including feeding paper,if the printing data(including space between characters)goes beyond the printing area,then the printer feeds a line of paper automatically(how much of feeding paper lies on the line height set by ESC 2 and ESC 3),the printing position moves to the beginning of next line at the same time.
- 4) The default line height is1/7inch,equal to 30 dots on vertica ldirection.If there is a character enlarged two times in next line,or the bit map occupies 2line or even more,and the barcode is higher than normal character,feeding quantity of the printer can not meet the demand,causing super imposition of character which is being printed and character of last line.It can increase the height ofl ine to avoid this.

Example:

When printing a 6 characters hight download bit map can use the formula below:

{vertical dot number (8×6) feeding dots of printing area starting position (24) } × vertical motion units (203/203) =24, that is, it needs to move down 24dots on the basis

of printing area starting position to print out the whole bit map.

Using the commands below:

ESC W xL,xH,yL,yH,dxL,dxH,dyL,dyH

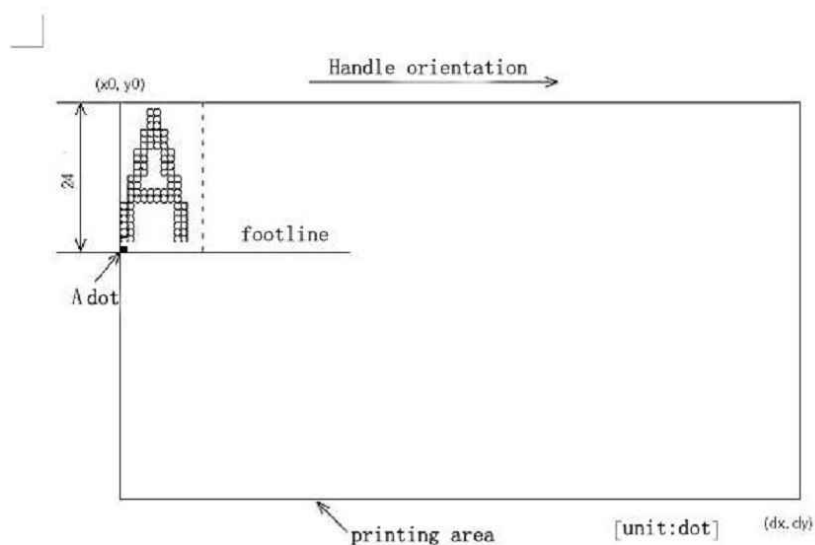
ESC T n

ESC 3 24 Setting new height of the line

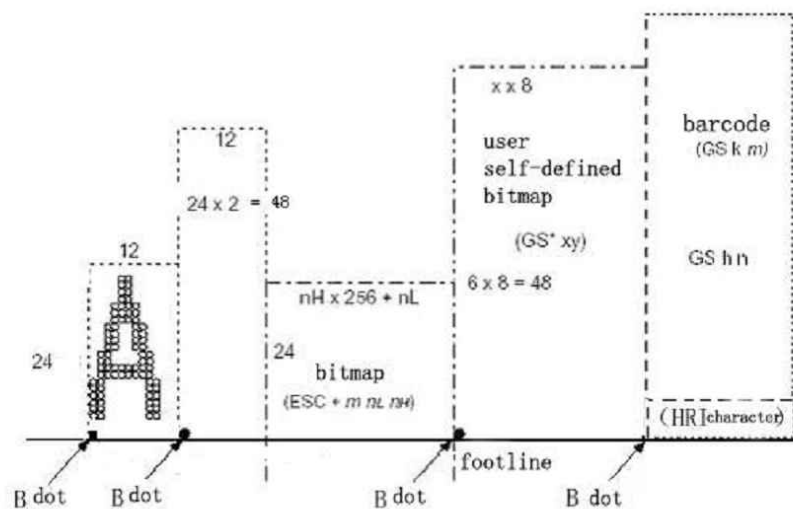
LF

GS / 1

ESC 2 Recovering the line height to 1/6 inch



Picture B.2 Store location of character data

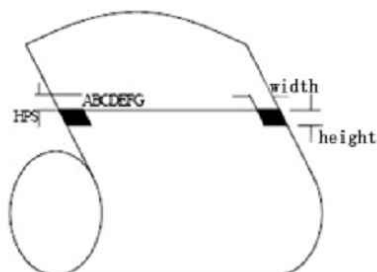


Picture B.3 Store location of printing data



Appendix C: the pre-print black mark description

Otherwise may cause printer can not identify a black mark. The black mark pre-print specification:



Height range: $4\text{mm} \leq \text{Height} \leq 6\text{mm}$

<10% (the paper black mark width other fractions for the reflectivity of infrared>65%)

HPS: HPS marks the last rim to be apart from the distance of printing the origin top rim for printer black. $4.5\text{mm} \leq \text{HPS} \leq 6.5\text{mm}$