OCBP-M80 Portable Label Printer Technical Commands Manual

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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. ESC/POS command

1) Description of Name and function of the command. This is the first part of the command instruction, which provide the command of ASCII form and the function description.

2) Format. In this part, using three kinds of form: the ASCII,HEX and Decimal, to describe the command.

3) The default is Decimal if have no especial description, For example: 1 ≤ n ≤ 4,1 is Decimal 1, not the ASCII code 1.

4) Scope. Provide the scope of the Variable。

5) Description. Provide the detailed explanation of the command.

6) 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.

7) 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 ≤ n ≤ 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]

2. CPCL command

1) Description of Name and function of the command. his is the first part of the command instruction, which provide the command of character form and the function description.

2) Format. This part uses the character encoding form to describe the instructions.

3) Instructions. Provide the scope of the instruct and range of variate.

4) Reference. Provide some other commands which are interrelated or similar.

---> PRINT

---> [Name]   Print Order

---> [Format]   PRINT

---> [Instruction]   CPCL command，the last print command execution，receipt PRINT and

ENTER，indicated a document is completed.

---> [Reference]

Note: CPCL instruct rules state:

1. Instructions are forms of characters, and all are capitalized, both ends with the ENTER、 line feeds。

2. Zebra instruct is judged by the followed conditions: starting with !,followed by a space, and then five figures.

3. Each parameter ended with Spaces or ENTER.(Several ended with ;)

Except first instruct （For Example："! 0 200 200 210 1"） "!" must be followed by a space, other

parameters can follow with any space(For Example：! 0 200 200 210 1).

4. Every number parameters for maximum of 65536.

5. If the parameter is the fixed length, content behind the last parameter will be ignored.

For Example:! 0 200 200 210 1 sdhsiadhsiahdsaudgu

6. The maximum of vertical coordinate: 400mm(3200dots), if >3200,will be 0.

7. The maximum of horizontal coordinates: 576 dots, if >3200,will be 0.

8. For the position of overlapping print content,

9. Only after received the PRINT instruction, the machine will print, otherwise it will not print at all.

10. There can be spaces in front of the instructions, but can not have other content.

ESC/POS command

HT   Horizontal tab

[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   Printing and feeding line

[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   Printing and feeding paper

[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   Printing and entering

[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   Real time status transmission

[Name]   Real time status transmission

[Format]   ASCII   DLE   EOT   n

             Hex   10   04   n

             Decimal   16   4   n

[Range]   1 ≤ n ≤ 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 beal so valid even though the printer is set to forbid by the

              Command of ESC=(selectingperpheral).

             ·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 auo 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   Setting the right space of characters

[Name]   Setting the right space of characters

[Format]

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

[Range]   0 ≤ n≤255

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

[Note]   -When the character enlarges,the space enlarges the sametimes.

-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 vertial or lateral shifting area pointed by GSP.Changing units of vertial

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   selecting print mode

[Name]   selecting print mode

[Format]   ASCII   ESC   !   n

             Hex   1B   21   n

             Decimal   27   33   n

[Range]   0 ≤ n ≤ 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 onor 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   Setting absolute print position

[Name]   Setting absolute print position

[Format]   ASCII   ESC $ nL   nH

            Hex   1B   24   nL   nH

            Decimal   27   36   nL   nH

[Range]   0≤nL ≤ 255

            0 ≤nH≤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   Selecting/Canceling self defined character

[Name]   Selecting/Canceling self defined character

[Format]   ASCII   ESC   %   n

              Hex   1B   25   n

              Decimal   27   37   n

[Range]   0 ≤ n ≤255

[Description]   Selecting/Canceling self defined character

            ·When n(LSB)=0，cancel user defined characterset.

            ·When n(LSB)=1，select user defined characterset.

[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)]   Define user defined character

[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 ≤ c1 ≤ c2 ≤ 126

            0 ≤ x ≤ 12 standard ASCII style A(12×24)

            0 ≤ x ≤ 9 compressing ASCII style B (9 × 17)

            0 ≤ d1 ... d(y × xk) ≤ 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.

            ·x specify the vertical byte number

[Notice]   · The code range of defined character:from<20>Hto<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 selt defined characters are style B(9*17).

[Default]   Built incharacter set.

[Reference]   ESC %, ESC ?

[Example]   ·When select the standard ASCII style(12×24)
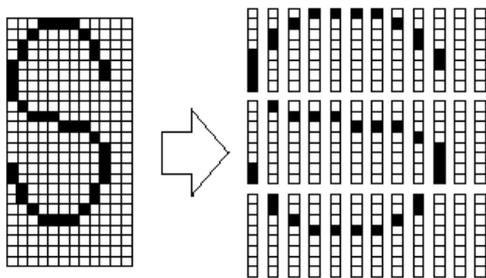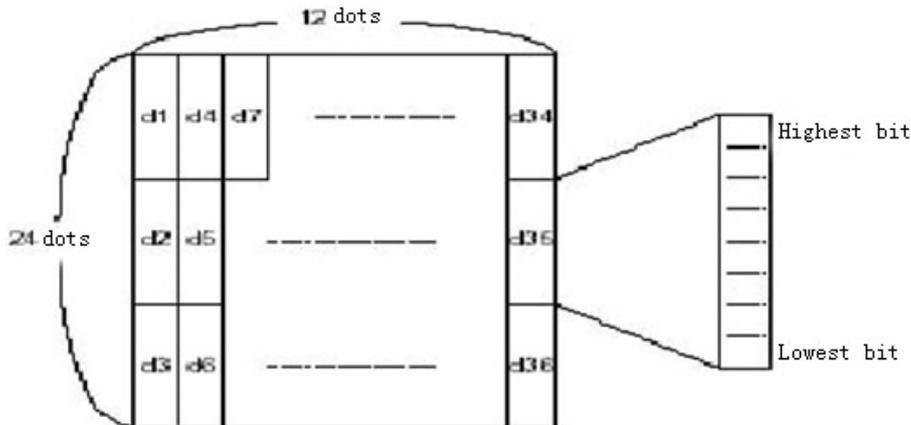
$d1= <0F>H$ $d4 = <30>H$ $d7 = <40>H \ldots$
$d2 = <03>H$ $d5 = <80>H$ $d8 = <40>H \ldots$
$d3 = <00>H$ $d6 = <00>H$ $d9 = <20>H \ldots$

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

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...
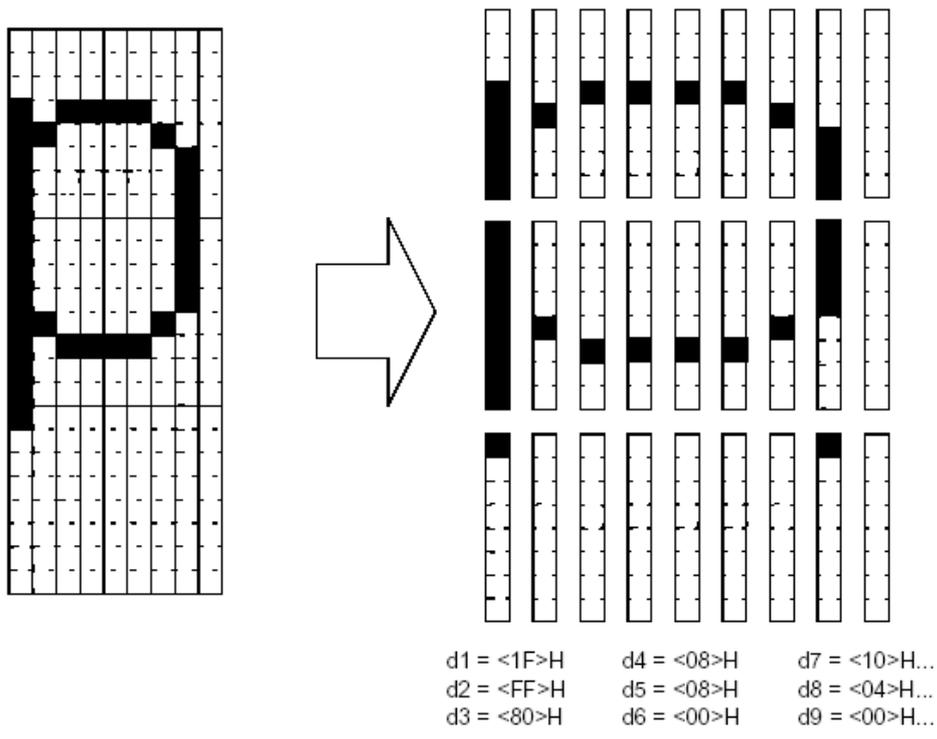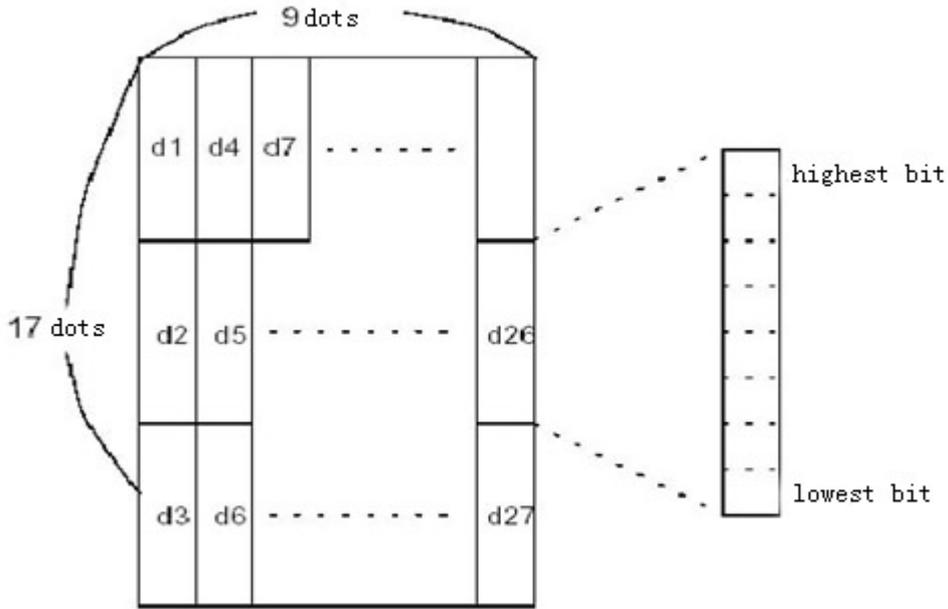
ESC *   m nL nH d1... dk   Selecting bit map mode

[Name]	Selecting bit map mode						

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

15

Decimal 27 42 m nL nH d1...dk

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

0 ≤ nL ≤ 255

0 ≤ nH ≤ 3

0 ≤ d ≤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 × 256
1	8DD	8	68 DPI	203 DPI	nL + nH × 256
32	24SD	24	203 DPI	101 DPI	(nL + nH × 256) × 3
33	24DD	24	203 DP	203 DPI	(nL + nH × 256) × 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×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 is1,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：

· chosing 8 dots density：
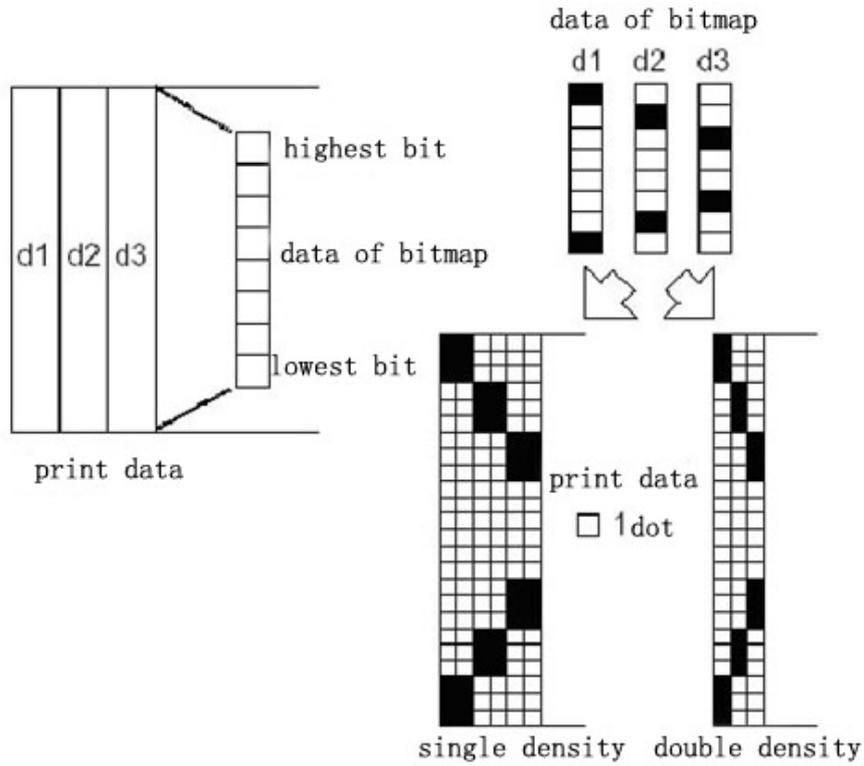
· chosing 24 dots density：
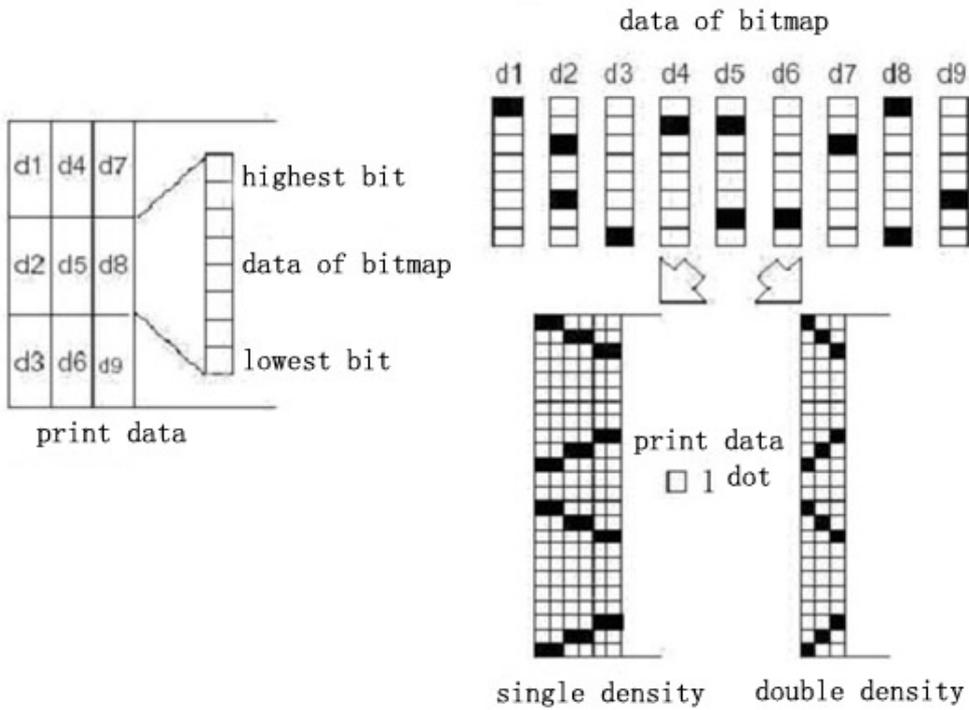
ESC – n   Select／cancel underline

[Name]   Select／cancelunderline

[Format]   ASCII   ESC   -   n

Hex   1B   2D   n

Decimal   27   45   n

[Range]   0 ≤ n ≤2, 48 ≤n ≤ 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(1dot 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 is1dot 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   Setting default height of line

[Name]   Setting default height of line

[Format]   ASCII   ESC   2

Hex   1B   32

Decimal   27   50

[Description] Selecting32 dots（4mm，about 1、7inch）line height

[Notice]   ·Line height is independent under standard and page mode

[Reference]   ESC 3

ESC 3 n   Setting the height of the line

[Name]   Setting the height of the line

[Format]   ASCII   ESC   3   n

             Hex   1B   33   n

             Decimal   27   51   n

[Range]   0 ≤ n ≤ 255

[Notice]   Setting[n*units of vertial 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 vertial or lateral shifting are set by GSP,changing this setting will not influences

             current height of line

             · Using vertical shifting units under standard mode

             · Accoridng 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:

             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(40inches).If it is beyond this distance,taking the

maximum distance.

[Default value]   The default height of line is 4mm(about1/6inch)

[Reference]   ESC 2, GS P

ESC = n   Selecting printer

[Name]   Selecting printer

[Format]   ASCII   ESC   =   n

             Hex   1B   3D   n

	Decimal	27	61	n

[Range]   0≤ n ≤ 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	Permiting printer
1-7				Undefined

[Notice]   · When the printer is forbidden,the printer ignores all the commands(DLEEOT,

DLEENQ,DLEDC4)except real time command until the command is allowed.

[Default value]   n = 1

ESC ? n   Cancel user self-defined character

[Name]   Cancel user self-defined character

[Format]   ASCII   ESC   ?   n

Hex   1B   3F   n

Decimal   27   63   n

[Range]   32 ≤n ≤127

[Description]   Cancel user self-defined character

[Note]   · Cancel the character code n of user self-defined character. The character use incharacter

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 @   Initializing the printer

[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 swith 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   Setting horizontal tab positions

[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] $1 \leq n1 \leq n2 \leq \ldots \leq nk \leq 255$

            $0 \leq k \leq 32$

[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 asceding 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 atintervals of 8 characters for font A(12´24).

[Reference]   **HT**

ESC E n   Select／Cancel bold font print

[Name]   Select／Cancel bold font print

[Format]   ASCII   ESC   E   n

Hex   1B   45   n

Decimal   27   69   n

[Range]   0 ≤ n ≤ 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 is1,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   Selecting/canceling double print mode

[Name]   Selecting/canceling double print mode

[Format]   ASCII   ESC   G   n

	Hex	1B	47	n
	Decimal	27	71	n

[Range]   0 ≤ n ≤ 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   Printing and feeding paper

[Name]   Printing and feeding paper

[Format]	ASCII	ESC	J	n
	Hex	1B	4A	n
	Decimal	27	74	n

[Range]   0 ≤n ≤ 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   Select font

[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   Selecting international characterset

[Name]   Selecting international characterset

[Format]   ASCII   ESC   R   n

              Hex   1B   52   n

              Decimal   27   82   n

[Range]   0 ≤n ≤ 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   Selecting/canceling character 90 clockwise

[Name]   Selecting/canceling character 90 clockwise.

[Format]   ASCII   ESC   V   n

Hex   1B   56   n

Decimal   27   86   n

[Range]   0 ≤ n ≤ 1, 48 ≤ n ≤ 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   Setting relative printing position

[Name]   Setting relative printing position

[Format]   ASCII   ESC   \   nL   nH

　　　　　Hex   1B   5C   nL   nH

　　　　　Decimal   27   92   nL   nH

[Range]   0 ≤ nl ≤ 255   0 ≤ nH ≤ 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×

256)horizontal motion unit]

[Notice]   ·Any setting that exceeds the printable area is ignored.

·When printing position moves to the right：nL+nH×256=N。

·When printing position moves to the left,using radix complement：nL+nH×256=

65536–N。

·The print starting position moves from the current position to[N×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   Selecting alignment mode

[Name]   Selecting alignment mode

[Format]   ASCII   ESC   a   n

              Hex   1B   61   n

              Decimal   27   97   n

[Range]   0 ≤ n ≤ 2, 48 ≤ n ≤ 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]
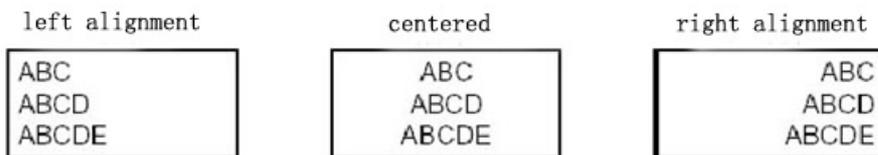
ESC c 5 n   Permitting/Forbiding keystoke

[Name]   Permitting/Forbiding keystoke

[Format]   ASCII   ESC   c   5   n

              Hex   1B   63   35   n

              Decimal   27   99   53   n

[Range]   0 ≤ n ≤ 255

[Description]   Permitting/Forbidding 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   Printing and feeding paper forward for n lines

[Name]   Printing and feeding paper forward for n lines

[Format]   ASCII   ESC   d   n

            Hex   1B   64   n

            Decimal   27   100   n

[Range]   0 ≤n ≤ 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   Selecting character code table

[Name]   Selecting character code table

[Format]   ASCII   ESC   t   n

            Hex   1B   74   n

            Decimal   27   116   n

[Range]   0 ≤n ≤ 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 Cyrilliec #2
8	MIK[Cyrillic /Bulgarian]
9	CP755 [East Europe，Latvian 2]
10	Iran
11	reserve
12	reserve
13	reserve
14	reserve
15	CP862 [Hebrew]
16	ＷCP1252 Latin I
17	WCP1253 [Greek]
18	CP852 [Latina 2]
19	CP858 Multilingual Latin Ⅰ+Euro)
20	Iran II
21	Latvian
22	CP864 [Arabic]
23	ISO-8859-1 [West Europe]
24	CP737 [Greek]
25	WCP1257 [Baltic]
26	Thai 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   Selecting/canceling invert printing mode

[Name]   Selecting/canceling invert printing mode

[Format]   ASCII   ESC   {   n

           Hex   1B   7B   n

           Decimal 27   123   n

[Range]   0 ≤ n ≤ 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 is1,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]
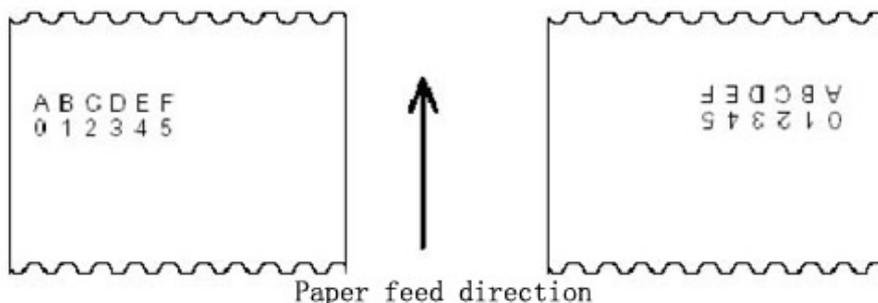
FS P n   Printing the prestored bit map

[Name]   Printing the prestored bit map

[Format]   ASCII   FS   P   n

Hex   1C   50   n

Decimal   28   80   n

[Range]   0 ≤ n ≤ 7

[Description] This command prints the 2 value bit map which is pre-stored 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 max width is 576dots,and max height 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

(OCBP-M80 setting tool software).The bit map by this mode does not lose unless

download other bitmap to cover it .

GS ! n   Selecting character boundary

[Name]   Selecting character boundary

[Format]   ASCII   GS   !   n

              Hex   1D   21   n

              Decimal   29   33   n

[Range]   0 ≤ n ≤ 255

              （1≤longitudinal magnification multiple≤8，1≤lateral magnification multiple≤8）

[Description]   Using 0 to 2 bits to select character height,4 to7 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

Table 2

Selecting character width

Hex	Decimal	lateral magnification;
00	0	1 （normal）
10	16	2（double height
20	32	3
30	48	4

04	4	5	40	64	5
05	5	6	50	80	6
06	6	7	60	96	7
07	7	8	70	112	8

[Notice]   · This command is effective to all the characters(ASCII and Chinese characters) except

HRI 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.

GS * x y d1...d(x × y × 8)   Defining downloaded bit map

[Name]   Defining downloaded bit map

[Foramt]   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*y is of flimit,then the command is forbidden.

· d means the image data.1print,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 /**
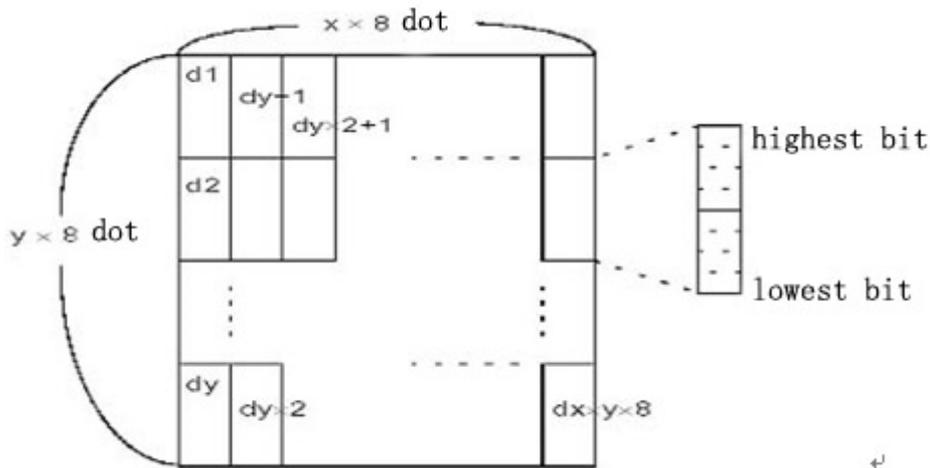
GS / m   Printing downloaded bit map

[Name]   Printing downloaded bi tmap

[Format]   ASCII   GS   /   m

Hex   1D   2F   m

Decimal   29   47   m

[Range]   0 ≤ m ≤ 3, 48 ≤ m ≤ 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   Selecting/canceling black white revert printing mode

[Name]   Selecting/canceling black white revert printing mode

[Format]

ASCII	GS	B	n
Hex	1D	42	n
Decimal	29	66	n

[Range]   0 ≤ n ≤ 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   Selecting the printing position of HRI character

[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   Setting left margin

[Name]   Setting left margin

[Format]

	ASCII	GS	L	nL	nH
	Hex	1D	4C	nL	nH
	Decimal	29	76	nL	nH

[Range]   0 ≤ nL ≤ 255

                    0 ≤ nH ≤ 255

[Description] ·Setting left margin by nL and nH

              ·Setting left margin at[(nL+nH×256)×horizontal motion unit)]inches.
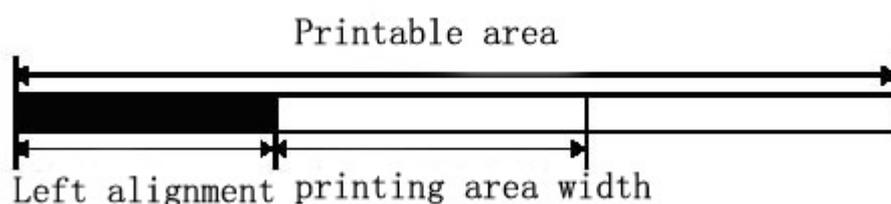
[Notice]   ·This command is just available at the zero position of the line and under standard

                  ·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 Max-width 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   Setting horizontal and vertical motion units

[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 ≤ x ≤ 255

                 0 ≤ y ≤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）

                 ·When x and y are all 0， x and y are setting as default value

[Notice]   ·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)

①Usingxcommand： ESC SP, ESC $, ESC \, GS L, GS W

②Usingycommand：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：

Usingxcommand： **ESC 3, ESC J, ESC W, GS $, GS **

Usingycommand：**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 S**P, **ESC** $, **ESC** 3, **ESC** J, **ESC** W, **ESC** \, **GS** $, **GS** L, **GS** V, **GS** W, **GS** \

①GS V m ②GS V m n   Select cutting mode and cut paper

[Name]   Select cutting mode and cut paper

[Format]

①ASCII	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 = 66The 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   Setting the width of printing area

[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 ≤ nL ≤ 255

0 ≤ nH ≤ 255

[Description]   Setting the width of printing area by nL and nH

·Setting width of printing area to [(nL + nH × 256) × horizontal motion unit)] inches.
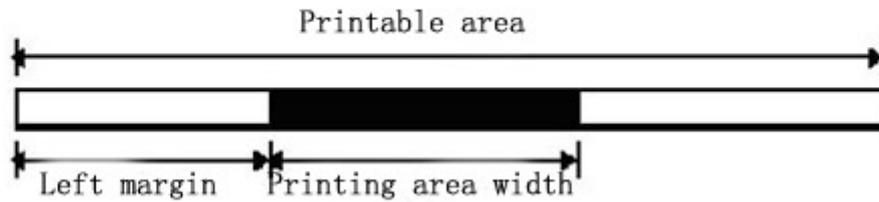
[Notice] ·This command is just available at the zero position of the line and under standard mode.

·It is not available under page mode,the printer will handle it as normal data.

·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   Selecting font of HRI used

[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   Selecting height of barcode

[Name]   Selecting height of barcode

[Format]   ASCII   GS   h   n

   Hex   1D   68   n

   Decimal   29   104   n

[Range]   1 ≤ n ≤ 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   Printing barcode

[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]   ①0 ≤ m ≤ 6   （Value range of k and d is decided by its type）

   ②65 ≤ m ≤ 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	$11 \le k \le 12$	$48 \le d \le 57$
	1	UPC-E	$11 \le k \le 12$	$48 \le d \le 57$
	2	JAN13 (EAN13)	$12 \le k \le 13$	$48 \le d \le 57$
	3	JAN 8 (EAN8)	$7 \le k \le 8$	$48 \le d \le 57$
	4	CODE39	$1 \le k \le 255$	$45 \le d \le 57, 65 \le d \le 90, 32, 36, 37, 43$
	5	ITF	$1 \le k \le 255$	$48 \le d \le 57$
	6	CODABAR	$1 \le k \le 255$	$48 \le d \le 57, 65 \le d \le 68 , 36, 43, 45,46,47,58$
②	65	UPC-A	$11 \le n \le 12$	$48 \le d \le 57$
	66	UPC-E	$11 \le n \le 12$	$48 \le d \le 57$
	67	JAN13 (EAN13)	$12 \le n \le 13$	$48 \le d \le 57$
	68	JAN 8 (EAN8)	$7 \le n \le 8$	$48 \le d \le 57$
	69	CODE39	$1 \le n \le 255$	$45 \le d \le 57, 65 \le d \le 90, 32, 36, 37,43$ $d1 = dk = 42$
	70	ITF	$1 \le n \le 255$	$48 \le d \le 57$
	71	CODABAR	$1 \le n \le 255$	$48 \le d \le 57$ $65 \le d \le 68, 36, 43,45,46,47$ 58

7 2	CODE93	1 ≤ n≤ 255	0 ≤ d ≤ 127
7 3	CODE128	2 ≤ n≤ 255	0 ≤ d ≤ 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 receiving13 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 aeven number.If entering code data of odd

number,the last data will be ignored

[Notice②]

·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)：

·Refering 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   Setting the width of barcode

[Name]   Setting the width of barcode

[Format] ASCII   GS   w   n

      Hex   1D   77   n

      Decimal   29   119   n

[Range]   2 ≤ n ≤ 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   Setting Chinese characters mode

[Name]   Setting Chinese characters mode

[Format]   ASCII   FS   !   n

           Hex   1C   21   n

           Decimal   28   33   n

[Range]   0 ≤n ≤ 255

[Descriptiom]   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 been 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 &   Selecting Chinese character mode

[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   selecting/canceling Chinese underline mode

[Name]   selecting/canceling Chinese underline mode

[Format]   ASCII   FS   -   n

Hex   1C   2D   n

Decimal   28   45   n

[Range]   0 ≤ n ≤ 2, 48 ≤ n ≤ 50

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

n	Function
0, 48	canceling Chinese underline
1, 49	selecting Chinese underline（1dot 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(horizontaltab),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 .   canceling chinese mode

[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   defining user self-defined Chinese

[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 ≤ c2 ≤ FEH

0 ≤ d ≤ 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：
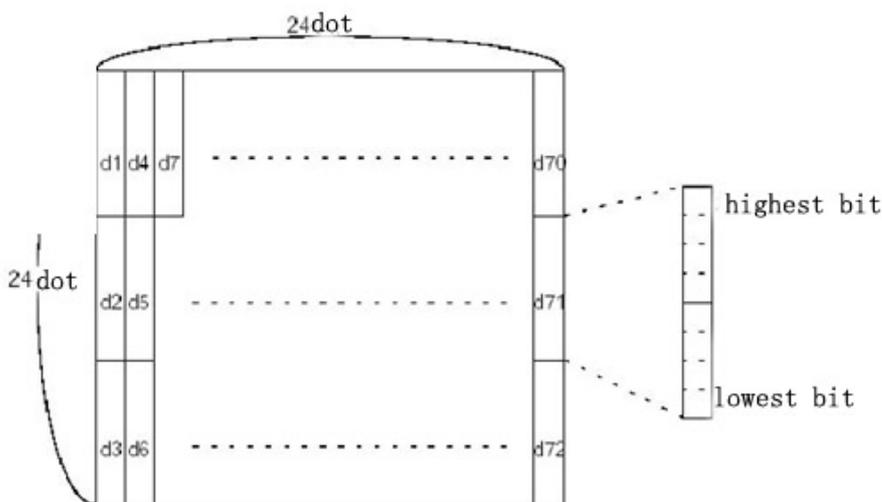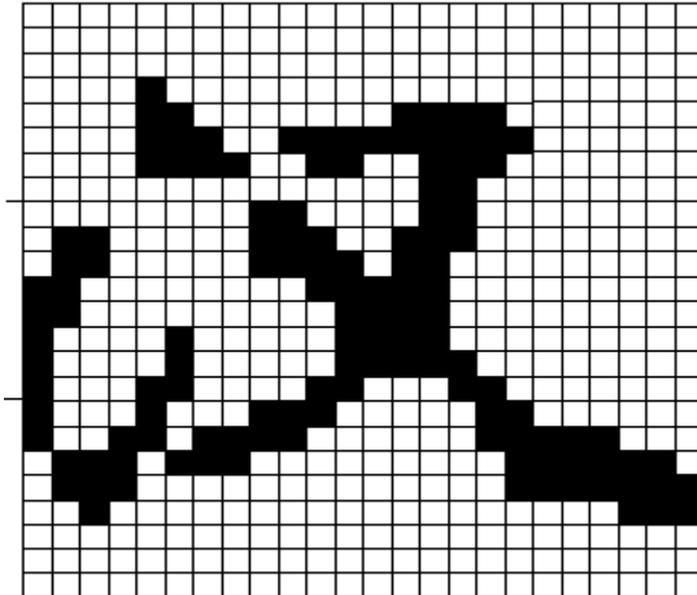
```
D1=00H, D4=00H, D7=00H, D10=00H.......
D2=1FH, D5=78H, D8=60H, D11=00H.......
D3=C0H, D6=30H, D9=38H, D12=70H.......
```

FS C n   selecting Chinese code system

[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]   ·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   Setting the left and right space of Chinese character

[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 ≤ n1 ≤ 255

0 ≤ n2 ≤ 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]   ·   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 laterial shifting unit under the standard mode.

·Selecting to use the laterial or vertical shifting unit according to the printing area under page mode.

① Using horizontal shifting when the beginning position is the top left or lower right corner of the printing area

②   Using vertical shifting when the beginning position is the lower left or top right corner of the printing area

③   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   selecting/canceling Chinese double height or width

[Name]	selecting/canceling Chinese double height or width		
[Format]	ASCII	FS	W	n
	Hex	1C	57	n

Decimal   28   87   n

[Range]   0 ≤ n ≤ 255

[Description]   Selecting/canceling Chinese double width mode

·Cancel Chinese 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 canceling 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 !**

GS Z n   Select 2D code type

[Name]   Select 2D code type

[Format]   ASCII   GS   Z   n

Hex   1D   5A   n

Decimal   29   90   n

[Range]   0 ≤n ≤ 2

[Description]   Select 2D code type

· n = 0 select PDF417

· n = 1 select DATA MATRIX

· n = 2 select QR CODE

[Reference]   **ESC Z**

ESC Z m n k dL dH d1 …dn   Print 2D code

[Name]	Print 2D code							
[Format]	ASCII	ESC	Z	v	r	k	nL nH	d1 …dn
	Hex	1B	5A	v	r	k	nL nH	d1 …dn
	Decimal	27	90	v	r	k	nL nH	d1 …dn

[Range]   The meaning and range of parameter depends on the 2D code type of **GS Z selection**.

· The parameters will be different due to the barcode with different Parameter v, r

① PDF417 code

1 ≤ v ≤ 30   means characters number per line. The max value of v should be within the range of the allowable max value for the model due to the different model with different paper width.

0 ≤ r ≤ 8   means the level of error correction.

② DATA MATRIX code

0 ≤v ≤ 144   means the height of graph.(0: auto select).

8 ≤ r ≤ 144   means the width of graph (when v=0, void).

③ QR CODE

0 ≤ v ≤ 40   means graph version (0: auto select).

r =76,77,81,72   means the level of error correction. (L:7%, M:15%,Q:25%,H:30%).

· The Parameter meaning of Parameter k, n(nL, nH), d .

1 ≤ k ≤ 6   means the times of laterial Magnification.

1 ≤ n ≤ 65535   means the data length of printing code is parameter n, nL and nH is the low level and high level of value n (n= dL + dH × 256).

0 ≤ dn ≤ 255   means data of barcode.

[Description] Print the 2D code according to **GS Z** selection.

[Reference] **GS Z**

①GS k m v r d1...dn NUL ②GS k m v r nL nH d1...dn   Print 2D code

[Name]	Print 2D code						
[Format]	①ASCII	GS	k	m	v	r	d1...dn NUL

Hex	1D	6B	m	v	r	d1...dn	00
Decimal	29	107	m	v	r	d1...dn	0
Hex	1D	6B	m	v	r	nL nH	d1... dn
Decimal	29	107	m	v	r	nL nH	d1... dn

[Range]   ①32 ≤ m ≤34

②97 ≤ m ≤ 99

· The meaning is different when the barcode with different parameter v, r.

① PDF417 code

1 ≤ v ≤ 30   means characters number per line. The max value of v should be within

the range of the allowable max value for the model due to the different

model with different paper width.

0 ≤ r ≤ 8   means the level of error correction.

② DATA MATRIX code

0 ≤ v ≤ 144   means the height of graph.(0: auto select).

8 ≤ r ≤ 144   means the width of graph (when v=0, void).

③ QR CODE code

0 ≤ v ≤ 40   means graph version (0: auto select).

1 ≤ r ≤ 4   means the level of error correction. (L:7%, M:15%,Q:25%,H:30%).

· The Parameter meaning of Parameter n(nL, nH), d .

1 ≤ n ≤ 65535   means the data length of printing code is parameter n, nL and nH is the

low level and high level of value n (n= dL + dH × 256).

0 ≤ dn ≤ 255   means data of barcode.

[Description] Select a type of 2D code and print code.

· When use the first format, command is end by 00, d1…dn are barcode data. When use

the second format, all the n of d1…dn after nH are code data.

Parameter "m" is to select the code type, please refer to below graphic:

m		Code Type	Data Length	v	r	d
①	3	QR Code	1 ≤ n ≤	0 ≤ v ≤ 40	1 ≤ r ≤ 4	0 ≤ dn ≤ 255

2		65535			
3 3	Data Matrix	1 ≤ n ≤ 65535	0 ≤v ≤ 144	8 ≤ r ≤ 144	0 ≤ dn ≤ 255
3 4	PDF417	1 ≤ n ≤ 65535	1 ≤ v ≤ 30	0 ≤ r ≤ 8	0 ≤ dn ≤ 255
② 9 7	QR Code	1 ≤ n ≤ 65535	0 ≤ v ≤ 40	1 ≤ r ≤ 4	0 ≤ dn ≤ 255
9 8	Data Matrix	1 ≤ n ≤ 65535	0 ≤v ≤ 144	8 ≤ r ≤ 144	0 ≤ dn ≤ 255
9 9	PDF417	1 ≤ n ≤ 65535	1 ≤ v ≤ 30	0 ≤ r ≤ 8	0 ≤ dn ≤ 255

[Notice]   · When use the command to print 2D code, the magnification times of barcode depends on

the "n" of **GS w** set**.**

Reference]   **ESC Z, GS w**

CPCL commands

！ **{offset}   200   200   {height}   {qty}**   **Start command**

[Name]   Start command

[Format]   ！ {offset}   200   200   {height}   {qty}

[Description] {offset}：offset of the whole barcode in horizontal direction

200：horizontal resolution，203dots/inch（8dots/mm）

200：vertical resolution，203dots/inch（8dots/mm）

{height}: the max height of barcode, the unit is dot

{qty}: the quantity of printed barcode, the most is 1024pcs.

[Example]   **Input :**   **Output :**

！ 0 200 200 210 1
TEXT 4 0 30 40 Hello World   **Hello World**
FORM
PRINT

PRINT Commands

[Name]   Print command

[Format]   {command}

[Description] {command}:PRINT

Under CPCL command mode, this is the last command to stop print command or to print file; After carring out the print command, the printer exits the control range. One "Enter" must be needed after the print commands.

If error happened during printing, print again after recovery from error.

[Example]   **Input :**

! 0 200 200 210 1

……….……

PRINT

FORM Commands

[Name]   Print command

[Format]   {command}

[Description] {command}: FORM

After using FORM command, the printer will feed paper to the beginning of next barcode. The printer finds the beginning of next barcode according to the gap between two barcodes.

TEXT Commands

[Name]   Text command

[Format]   {command} {font} {size} {x} {y} {data}

[Description] {command} :TEXT（or T）

{font}: choose font

{size}: choose font size

{x}：   the beginning of horizontal printing

{y}:   the beginning of vertical printing

{data}: printed text content

font   Font dot

24		Character (12*24)，Chinese character (24*24)
55		Character (8*16)，Chinese character (16*16)

Choose character height		**Choose character width**	
size	Enlarge vertically	**size**	Enlarge horizontally
0	1（normal）	0	1（normal）
1	2（twice height）	10	2（twice width）
2	3	20	3
3	4	30	4
4	5	40	5
5	6	50	6
6	7	60	7
7	8	70	8

[Example] **Input :**   **Output :**

! 0 200 200 210 1

TEXT 24 11 30 40 Hello World   **Hello World**

PRINT

LINE Commands

[Name]   Line printing command

[Format]   {command}LINE（L）{x0} {y0 } {x1} {y1} {width}

[Description]   {command}:LINE（or L）

{x0}:   X-coordinate of the top-left corner

{y0}:   Y-coordinate of the top-left corner

{x1}:   X-coordinate of:

-top right corner for horizontal

-bottom left corner for vertical

{y1}:   Y-coordinate of:

-top right corner for horizontal

-bottom left corner for vertical

{width}: Line width

[Example]   **Input :**   **Output :**

    ! 0 200 200 210 1

    LINE 0 0 200 0 1

    LINE 0 0 200 200 2

    LINE 0 0 0 200 3

    PRINT
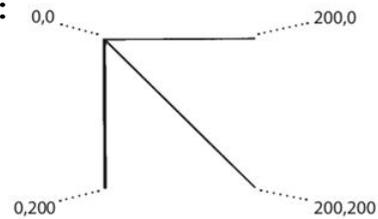
BOX Commands

[Name]   Box command

[Format]   {command} {x0} {y0 } {x1} {y1} {width}

[Description]   {command}:BOX

    {x0}: X-coordinate of the top left corner

    {y0}: Y-coordinate of the top left corner.

    {x1}: X-coordinate of the bottom right corner.

    {y1}: Y-coordinate of bottom right corner

    {width}: Unit-width of the lines forming the box

[Example]   **Input :**   **Output :**

    ! 0 200 200 210 1

    BOX 0 0 200 200 1

    PRINT
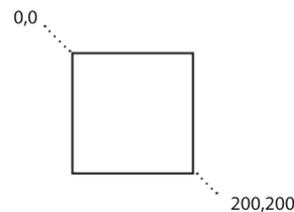
INVERSE-LINE Commands

[Name]   Inverse-line Command

[Format]   {command} {x0} {y0 } {x1} {y1} {width}

[Description]   {command}: INVERSE-LINE（or IL）

    {x0}: X-coordinate of the top left corner

    {y0}: Y-coordinate of the top left corner.

    {x1}:   X-coordinate of:

       -top right corner for horizontal

       -bottom left corner for vertical

    {y1}:   Y-coordinate of:

       -top right corner for horizontal

       -bottom left corner for vertical

    {width}: Width of the inverse-line

[Example]   **Input :**   **Output :**

! 0 200 200 210 1

TEXT 24 11 30 45 SAVE

TEXT 24 11 30 95 MORE

INVERSE-LINE 0 45 145 45 45

INVERSE-LINE 0 95 145 95 45

PRINT

GRAPHICS Commands

[Name]   Graphics Command

[Format]   {command} {width} {height} {x} {y} {data}

[Description]   {command}：Choose from the following

EXPANDED-GRAPHICS (or EG): Prints expanded graphics

COMPRESSED-GRAPHICS (or CG): Prints compressed graphics

{ width }: Byte-width of image

{ height }:Dot-height ofimage

{x}：   Horizontal starting position

{y}：   Vertical starting position

{data}: Graphics data

Bit-mapped graphics can be printed by using graphics commands. ASCII hex (hexadecimal) is used for expanded graphics data (see example). Data size can be reduced to one-half by utilizing the COMPRESSED-GRAPHICS commands with the equivalent binary characters(s) of the hex data. When using CG, a single 8 bit character is sent for every 8bits of graphics data. When using EG two characters (16bits) are used to transmit 8bits of graphics data, making EG only half as efficient. Since this data is character data, however, it can be easier to handle and transmit than binary data.

[Example]   **Input :**   **Output :**

! 0 200 200 210 1

EG 2 16 90 45 F0F0F0F0F0F0F0F0F00F0F0F0F0F0F0F0F

F0F0F0F0F0F0F0F0F00F0F0F0F0F0F0F0F

PRINT

BARCODE Commands

[Name]   Barcode Command

1D Barcode

[Format]   {command} {type} {width} {ratio} {height} {x} {y} {data}

[Description]   {command}： BARCODE(or B)

{type}：Barcode type

Type Value	Barcode type
UPCA	UPC-A
UPCE	UPC-E
EAN13	JAN13 (EAN13)
EAN8	JAN 8 (EAN8)
39	CODE39
CODABAR	CODABAR
93	CODE93
128	CODE128(Auto)

{width}: width of the narrow barcode.

{ratio}: Ratio of the wide barcode to the narrow barcode

0 = 1.5 : 1	20 = 2.0:1	26 = 2.6:1
1 = 2.0 : 1	21 = 2.1:1	27 = 2.7:1
2 = 2.5 : 1	22 = 2.2:1	28 = 2.8:1
3 = 3.0 : 1	23 = 2.3:1	29 = 2.9:1
4 = 3.5 : 1	24 = 2.4:1	30 = 3.0:1
	25 = 2.5:1	

{height}: height of the barcode

{x}:Horizontal starting position

{y}:Vertical starting position

{data}:Barcode data

[Example]   **Input :**   **Output :**

! 0 200 200 210 1

HORIZ.

BARCODE 128 1 1 50 150 10 HORIZ.

TEXT 24 0 210 65 HORIZ.

PRINT

2D Barcode

PDF417

[Format] {command} {type} {x} {y} {XD n} {YD n} {C n} {S n}

{data}

<ENDPDF>

[Example] {command}： BARCODE(or B)

{type}：PDF-417

{x}：Horizontal starting position

{y}：Vertical starting position

{XD n}：Width of the narrowest element. Range is 1 to 32, default is 2.

{YD n}：Height of the narrowest element. Range is 1 to 32, default is 6.

{C n}：   Character numbers of each line. Range is 1 to 30, default is 3.

{S n}：   Security level indicates maximum amount of errors to be detected and/or corrected.Range is 0 to 8; default is 1.

{data}：Barcode data

<ENDPDF>：Terminates PDF-417

[Example]   **Input：**

! 0 200 200 210 1

B PDF-417 10 20 XD 3 YD 12 C 3 S 2

PDF Data

ABCDE12345

ENDPDF

T 24 11 10 100 PDF Data

T 24 11 10 150 ABCDE12345

PRINT

Output：

PDF Data
ABCDE12345

QR Code

[Format] {command} {type} {x} {y} [M n] [U n]

   {data}

   <ENDQR>

[Description] {command}：   BARCODE(or B)

   {type}：QR

   {x}：Horizontal starting position

   {y}：Vertical starting position

   [M n]：QR code model number Range is 1 or 2. Default is 2

   [U n]：Width/Height of the module. Range is 1 to 6, default is 6.

   {data}：QR barcode data，See the following examples，{data} includes some mode selection symbols in addition to actual input data character string. The type of the input data could be recognized automatically by printer software or set "manually". There is a separator (comma) between mode selection symbols and the actual data. {data}format：

   <Error Correction Level><Mask No.><Data Input Mode (should be "A")>,<Data character String>

   Error Correction Level should be one of the following symbols：

   H-Ultra high reliability level(Level H)

   Q-High reliability level (Level Q)

   M-Standard level(Level M)

   L-High density level(Level L)

   Mask Number may be omitted or have a value from 0 to 8:：

   None – Automatic selection of the mask by software;

   From 0 to 9 – use mask with corresponding number (0 to 9)

   <ENDQR>:Terminates QR code.

[Example]   **Input :**   **Output :**

   ! 0 200 200 500 1

   B QR 10 100 M 2 U 10

   MA,QR code ABC123

   ENDQR

   T 24 11 10 300 code ABC123

   PRINT

BARCOD-TEXT Commands

[Name]   HRI character command

[Format]   {command} {font number} {font size} {offset}

[Description] {command}：BARCODE-TEXT(or BT)

　　　　　　　{font number}：HRI character font (Fixed to 12*24)

　　　　　　　{font size}：HRI character size (Fixed to original size)

　　　　　　　{offset}：Offset between HRI character and barcode.

[Example]   **Input :**   **Output :**

! 0 200 200 210 1

BARCODE-TEXT 24 0 50

BARCODE 128 1 1 50 0 20 123456789

BARCODE-TEXT OFF

PRINT

SETBOLD Commands

[Name]   Set bold command

[Format]   {command} {value}

[Description] {command}：SETBOLD

　　　　　　　{value} to mean setting bold or not

　　　　　　　1：set bold

　　　　　　　0：cancel bold

[Example]   **Input :**   **Output :**

! 0 200 200 210 1
SETBOLD 1
TEXT 24 0 0 0 This text is in bold
SETBOLD 0
TEXT 24 0 252 0 But this text is normal.
PRINT

SETSP Commands

[Name]   Change spacing between text characters

[Format]   {command} {spacing}

[Description]   {command}：SETSP

{spacing}：Spacing between characters, default is 0.

[Example]   **Input：**   **Output：**

! 0 200 200 210 1

T 24 11 0 10 Normal Spacing

SETSP 5

T 24 11 0 60 Spread Spacing

SETSP 0

T 24 11 0 110 Normal Spacing

PRINT

INVERSE-TEXT Commands

[Name]   Inverse-Text Command

[Format]   {command} {value}

[Description] {command}：INVERSE-TEXT (or IT)

{value} means Invert the image or not

1：Inverse-text

0：Cancel Inverse-text

[Example]   **Input：**   **Output：**

! 0 200 200 210 1

T 24 11 0 10 Normal Display

INVERSE-TEXT 1

T 24 11 0 60 Inverse Display

INVERSE-TEXT 0

T 24 11 0 110 Normal Display

PRINT

UNDERLINE-TEXT Commands

[Name]   Underline-Text Command

[Format]   {command} {value}

[Description] {command}：UNDERLINE -TEXT(or UT)

{value} means to print underline or not

1：Print Underline One Dot

2：Print Underline Two Dot

0：Cancel printing underline

[Example]   **Input：**   **Output：**

! 0 200 200 210 1

T 24 11 0 10 Normal

UNDERLINE-TEXT 1

T 24 11 0 60 Underline One Dot

UNDERLINE-TEXT 2

T 24 11 0 110 Underline Two Dot

UNDERLINE-TEXT 0

T 24 11 0 160 Normal

PRINT

PAGE-ROTATE Commands

[Name]   Page-Rotate 90°Command

[Format]   {command} {value}

[Description]   {command}：PAGE-ROTATE (or PR)

{value} means to rotate page 90°clockwise or not

1：Rotate

0：Not rotate

CENTER Commands

[Name]   Center Command

[Format]   {command}

[Description] The content in current line to be showed in center

LEFT Commands

[Name]   Left Command

[Format]   {command}

[Description] The content in current line to be showed on the left

RIGHT Commands

[Name]   Right Command

[Format]   {command}

[Description] The content in current line to be showed on the right

Appendix   A: 128 code

A.1 128 code summary

128code can code128ASCII characters and 100 numbers from00~99and some special character by

crossing using of character set A, BandC.Character of every character set code is as below：

　　Character set A：   ASCII characterfrom 00H to 5FH

　　Character set B：   ASCII characterfrom 20H to 7FH

　　Character set C：   100 numbers from 00~99

128 code can also code to the special character below：

SHIFTcharacter

"SHIFT" can make barcode character the first character after SHIFTcharacter transfor from character set

AtoB,orBtoA,back to the character set used before SHIFT."SHIFT"

Character can only be used to transform between character set AandB,it can not make the current code

character enter or quit state of character set C.

Selecting character of character set（CODEA、CODEB、 CODEC）

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.OnlyFNC1 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 FFor FF,the

printer will print all of the content in printing area.

For example：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.
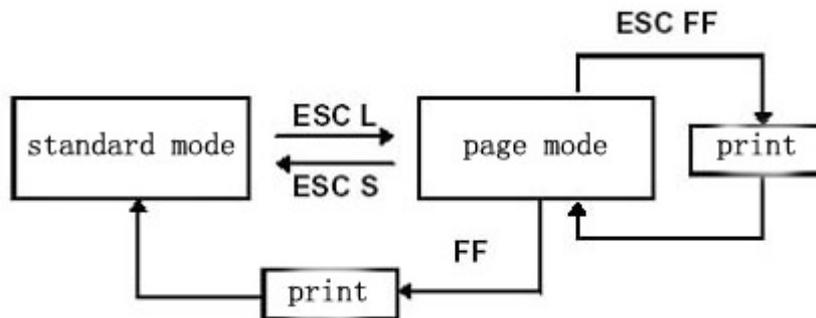
Picture B.1 Switching between standard mode and page mode

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

　　1）Some commands（suchas：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
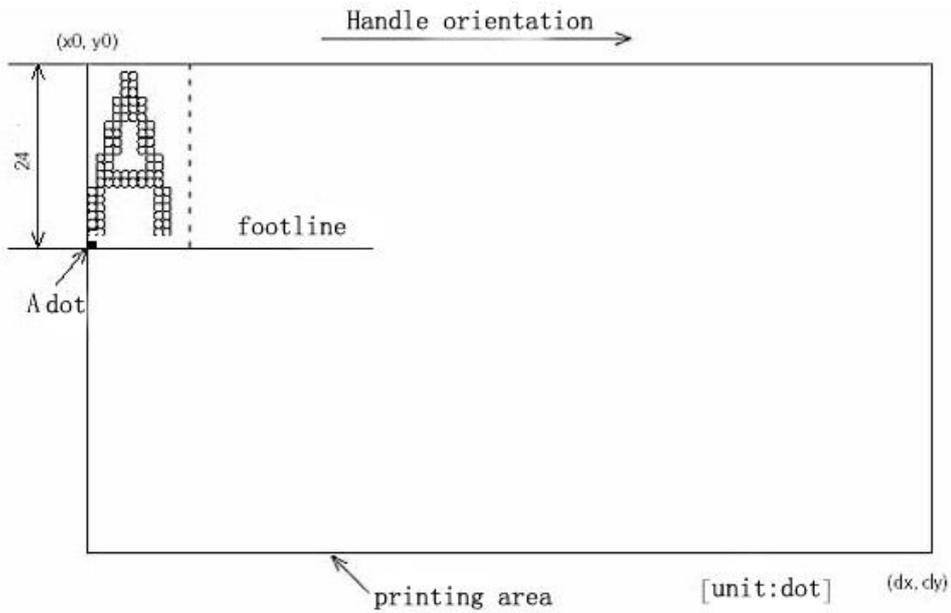
Picture B.2 Store location of character data
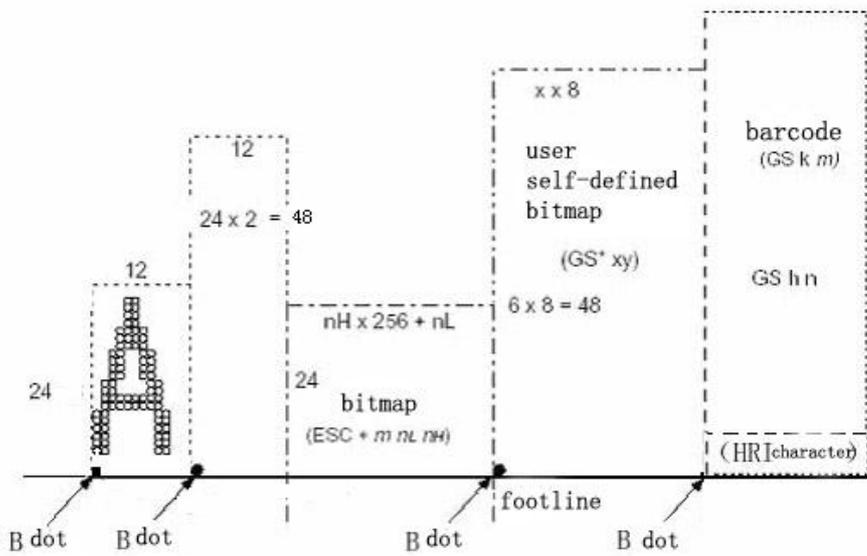

Picture B.3 Store location of printing data
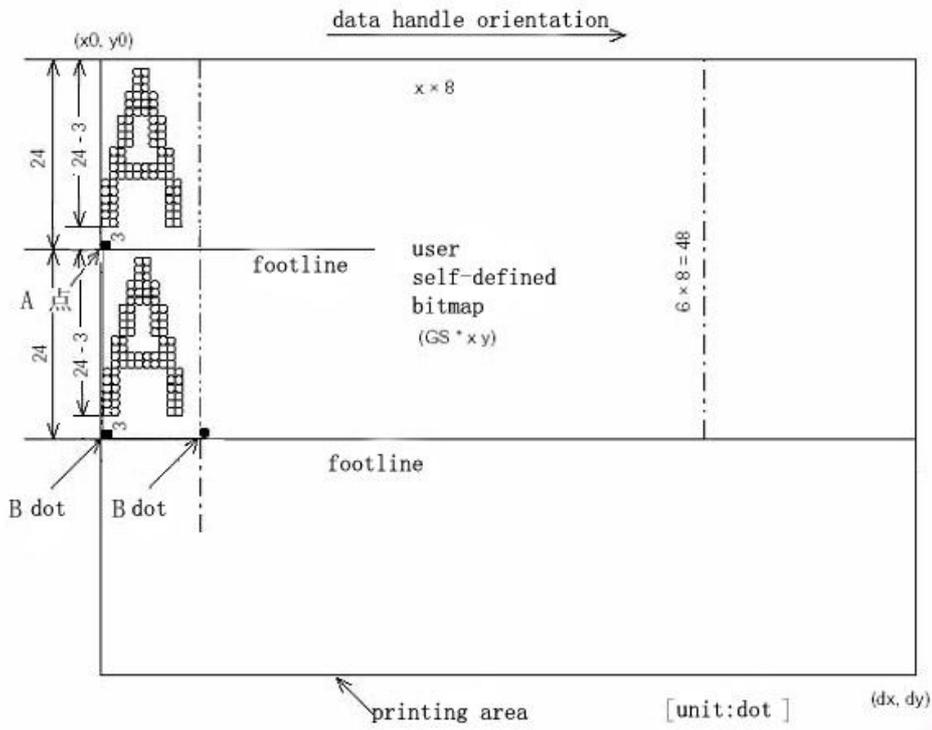
Picture B.4 Store location of downloading bitmap

Appendix C: the pre-print black mark description

User must obey the specification as follows when printing the black mark if wants to use pre-print black mark to progress note clamping,

Otherwise may cause printer can not identify a black mark.The black mark pre-print specification:
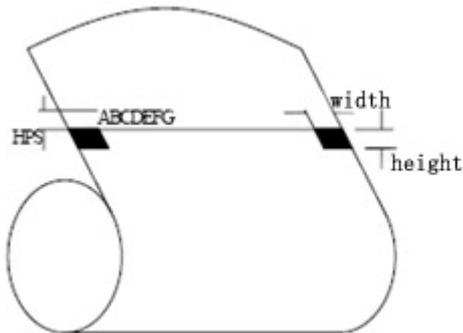
Printed lacation:is shown as chart above,the black mark should be printed to character surface of right or left side rim.

Width range:width≥7mm

Height range：4mm≤Height≤6mm

Vs the reflectivity of infrared：

<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. 4.5mm≤HPS≤6.5mm