KP-320 Kiosk Printer User Manual

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Revised records

No.	Date	Modify the content	Change the Page number	Draw up	Review
1	20180425	The first draft		Zhu Chunyan	Hu Riyu
2	20180529	Add to remove cutter jam and paper jam	10	Zhu Chunyan	Hu Riyu

Contents

1.Overview

KP-320 is 3 inch kiosk thermal printer which is consist of thermal printer head,cutter and control board.It is used for financial self-service terminals,communication self-service terminals,coupons self-service terminals,ticketing self-service terminals,power self service Terminals,medical self-service terminals,insurance self-service terminals,tax kiosks,self service terminals such as kiosk terminal equipment,tanker,Queuing machines and so on.

2.Production feature

①Smart appearance

②Compatible with EPSON ESC/POS command set

③Low noise thermal printing

④RS232 transmission speed is 115200bps

⑤Support Double QRCODE printing

3.Naming rules

KP-320 H RU F 18 H N S S N

(1) (2) (3) (4) (5) (6) (7) (8) (9) (10)

(1)	Model Name	KP-320
(2)	Default Features (Voltage)	H=24V
(3)	Default Functions (Interface)	R=RS232 T=TTL

		TU=TTL+USB RU=RS232+USB EU=Ethernet+USB ERU=Ethernet+RS232+USB TRU=TTL+RS233+USB PRU=Parallel+RS232+USB
(4)	Default Functions (Cutter)	F=full Cutter P=Half Cutter A=support full & half cut
(5)	Default Functions (Maximum paper roll diam eter of bracket)	08=Ø80mm 15=Ø150mm 18=Ø180mm 0=None
(6)	Default Functions (bracket)	H=Horizontal V=Vertical C=Cantilever N=None
(7)	Default Functions (Cash Drawer Interface)	D=with Cash Drawer Interface N=without Cash Drawer Interface
(8)	Default Functions (paper near end detection)	S=with detection N=without detection

(9)	Default Functions (take out paper sensor)	S=with detection N=without detection
(10)	Optional function (Paper presenter)	P=Presenter N=None

4.Specification

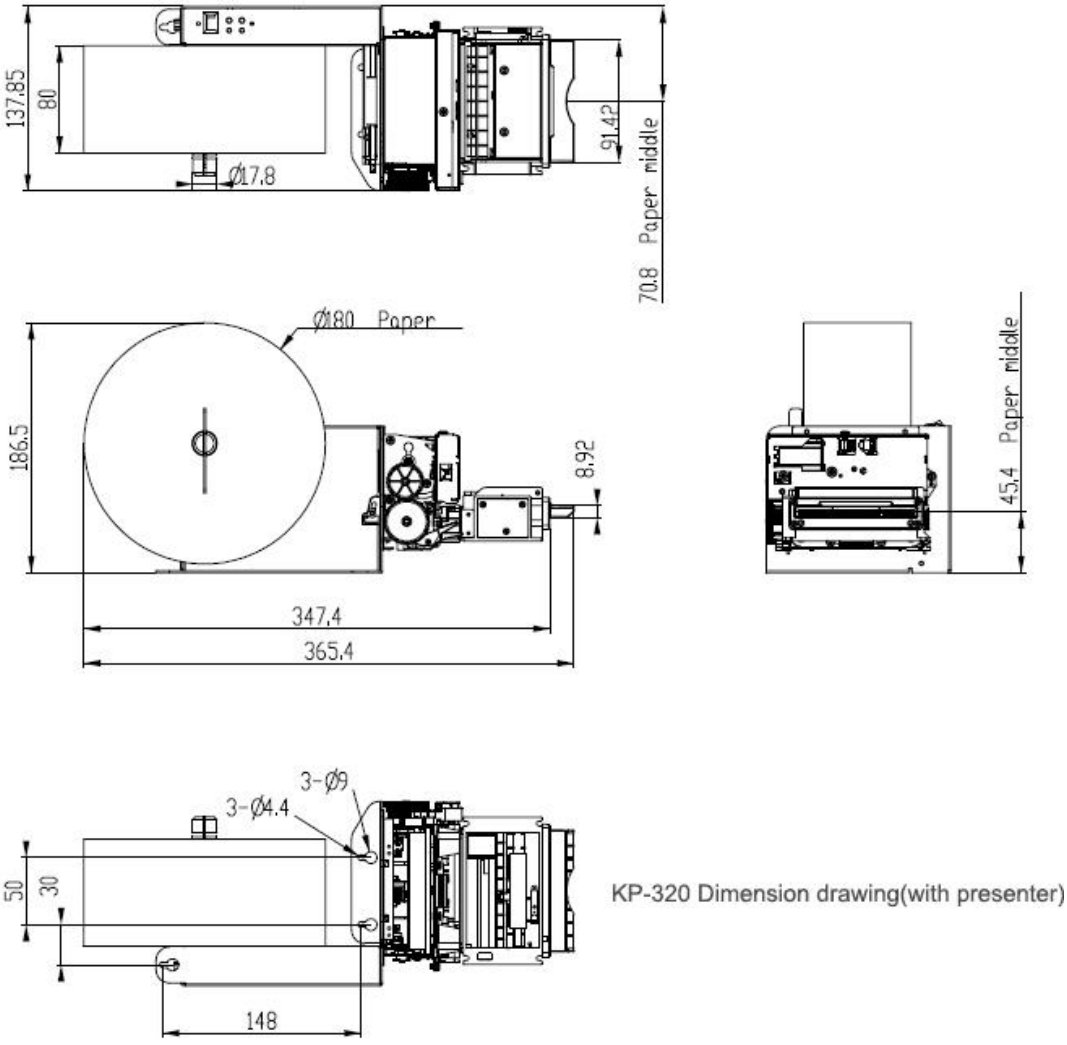
Printing	Print method	Thermal-line dot method
	Print speed	Max:150mm/s
	Print Density	(203dpi)8dots/mm
	Effective printing area	72/80mm
Character	Character set	ASCII,GBK,BIG5
	Print font	ASCII：(9*17,9*24,16*18,12*24) Chinese：（24*24）
	The characters number per line	Font A（12*24）：32 Font B（9*17）：42 GBK：16
Paper Roll specification	Paper type	Thermal paper roll
	Paper width	57.5±0.5mm/79.5±0.5mm/81.5±0.5mm
	Paper thickness	0.055-0.2mm
	Max paper roll diameter/paper roll inner diameter	Max:180mm/Min:18mm

	Paper Feed method	Automatic feeding (straight out)
Detection	Head temperature detection	Thermistor
	No Paper detection	Photoelectric detection
	Paper near end detection	Photoelectric detection
	Black mark detection	Photoelectric detection
Baud rate		9600bps-115200bps
Instruction Set		EPSON ESC/POS Command Set
Driver		Windows Driver
Interface		USB、Serial RS232、
Barcode	1D code	UPCA、UPC-E、JAN13(EAN13)、JAN8(EAN8)、CODE39、ITF、CODABAR、CODE128、CODE93；
	2D code	QR Code
Reliability	Print Life	＞100Km
	Cutter life	>1000000cuts
Cutter	Auto cutter	Support full cutter and half cutter
Power	input	DC 24V，≥2A
Environmental	Operating temperature	0°C~50°C
	Operating humidity	20%RH ~85% RH

conditions	Storage temperature		-20°C~60°C
	Storage humidity		5% ~90%RH
Physical characteristics	With presenter	Dimension(W*L*H)	137.85*365.4*186.5mm
	Without presenter	Dimension(W*L*H)	137.85*304*186.5mm

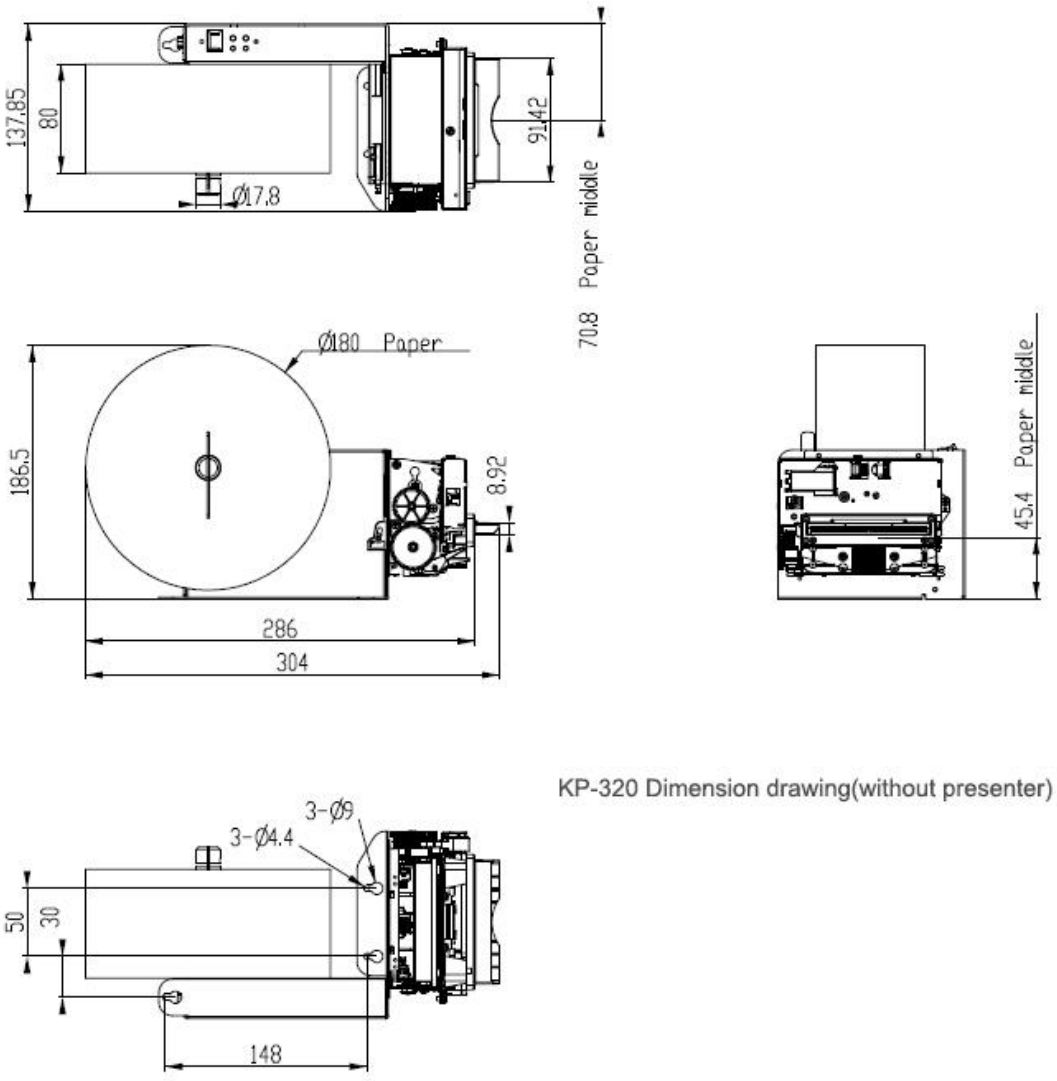
5.Dimension

5.1 With presenter dimension



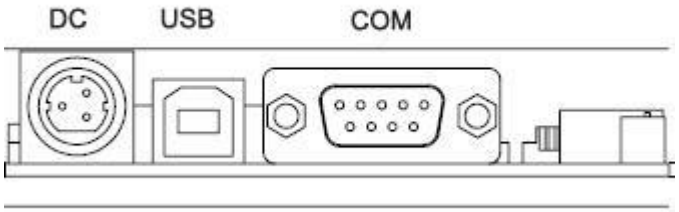
KP-320 Dimension drawing(with presenter)

5.1 Without presenter dimension



KP-320 Dimension drawing(without presenter)

6.Interface Description



(1) Power

Input DC power supply 24V voltage

(2) USB interface

The Printer USB port is the standard B type.

(3) COM Interface

The printer serial port is defined as the standard RS232 terminal pin (DB9 female)

DB9 female solder

7.Basic Operation

7.1 Print self-test page

Method 1: Turn the power off while holding the feed button depressed.Then turn the power on ,self-test receipt will be printed out.It including baud rate language and other some information.

Method two: Turn the power on, press the TEST key, you can print the self-test page.

7.2 Control Panel

The printer has two LED indicators to show the printer status.Two LEDS are power supply indicator (green light), and status indicator (red light)

POWER indicator	STATUS indicator	Printer status
Keep bright	Light off	Working properly
Keep bright	Flash 2 times	Printer head is not connected or temperature is too low

Keep bright	Flash 3 times	Out of paper
Keep bright	Flash 4 times	Cutter error
Keep bright	Flash 5 times	Printer head over heating
Keep bright	Flash 6 times	paper roller is not loaded properly

7.3 Remove cutter jam and paper jam

How to remove cutter jam:

Method one：Reset the cutter by turning printer off and then on, and quickly eliminate the card cutter

Method Two：Turn the cutter worm gear and the cutter will return to its normal position.

How to remove paper jam:

Firstly the printer cutter resume work , and then remove the paper jam, and finally clear the paper path residual scraps.

8.Command Introduction

The model compatible with EPSON ESC/POS command,which was been tes

t.The details as below.

8.1Command list

LF	Line feed	Print, paper feed Command
CR	Enter	
ESC J n	Print and paper feed n dots	
ESC d n	Print and paper feed n lines	
ESC 3 n	Set line space as n dots	Printing-set Command
ESC 2	Set default line space	
ESC $	Set printing position	
GS L nL nH	Set the amount of left margin	
ESC !	Set character printing method	
GS ! n	Set character printing method	
GS B n	Set、remove white printing	
ESC - n	Set、remove underline	
ESC V n	Set remove 90° revolving printing	
ESC a n	Setting position alignment mode	
ESC c 5 n	Allow and disable keystroke switches	
FS &	Set Chinese character mode	
FS .	Cancel Chinese character mode	
ESC % n	Select Cancel user customized cha	

	racter	
ESC & y c1 c2	Define user customized character	
ESC ? n	Cancel user customized character	
ESC R n	Select International character	
ESC t n	Select the character code page	
ESC * m Hl Hh [d]k	Bitmap vertical modulus data fillin gs	Bitmap Command
GS v 0	Bitmap horizontal modulus data p rint	
GS * x y	Define Downstream bitma	
GS / m	Print Downstream bitmap	
FS q n	Define NV bitmap	
FS p n m	Print NV bitmap	
HT	Horizontal tab	Tab Command
ESC D [d]k NUL	Set horizontal tabulation position	
GS H n	Set 1-D barcode readable characte r(HRI) print position	1-D barcode Command
GS h n	Set 1-D barcoe hight	

GS w n	Set 1-D barcode width	
GS k m	Print 1-D barcode	
GS (k pL pH cn fn m	Print QR CODE	QR CODE Command
GS k m v r nL n H d1…dk	Printing QR CODE	
US Q m n	Print double QR CODE	
GS r n	Transmission status	Status Inquire Comman d
DLE EOT n	Real-time transmission status	
ESC @	Printer reset	Other Commands
DC2 T	Printing self-test page	
GS V m n	Choose cut mode and cut	
ESC i	Full cuts	
ESC m	Partly cuts	

8.2 Commands details

①Printing and paper feed commands

Printing and paper feed

Name	print and paper feed

Code	ASCII : LF DEC : 10 HEX : 0A
Function	Print the buffer contest,and set the paper feed as per line space,then adjust print position to initial position at the next line.
Range	None
Default	None
Notes	None
Example	None

Enter

Name	Enter
Code	ASCII : CR DEC : 13 HEX : 0D
Function	Adjust print position to initial position of the same line.
Range	None
Default	None
Notes	After executing, R command, the new printing data will cover old data in the printing buffer.
Example	None

Print and paper feed dots

Name	Print and paper feed n dots
Code	ASCII : ESC J n DEC : 27 74 n HEX : 1B 4A n
Function	Print the buffer content and paper feed
Range	0 ≤ n ≤ 255
Default	None
Notes	Paper feed n dots when printing buffer is empty. After executing this command,printing position is moved t o initial
Example	1b 40 30 31 32 1b 4a 10

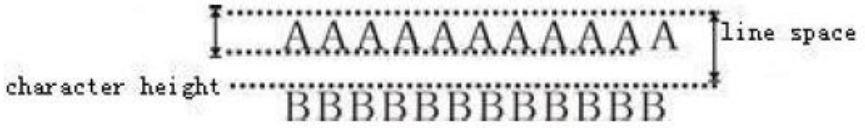
Print and paper feed n line

Name	Print and paper feed n lines
Code	ASCII : ESC d n DEC : 27 100 n HEX : 1B 64 n
Function	Print the contents in printing buffer and paper feed n lines.
Range	0 ≤ n ≤ 255
Default	None
Notes	Print this command set as initial position of the same lin

	e
Example	1b 40 30 31 32 1b 64 01

②Printing set commands

Set line space as n dots

Name	Set line space as n dots
Code	ASCII : ESC 3 n DEC : 27 51 n HEX : 1B 33 n
Function	Set line space as n dots
Range	0 ≤ n ≤ 255
Default	n = 33
Notes	Line space as below:  If the line space setted is less than the highest character i n that line,then this line space is equal to the height of the highest character. If ESC2,ESC@,reset the printer, the printer blackout,and the line space turns to default.
Example	1b 40 1b 33 30

	30 31 32 0d 0a 30 31 32 0d 0a 1b 32 30 31 32 0d 0a 30 31 32 0d 0a

Set line space to default

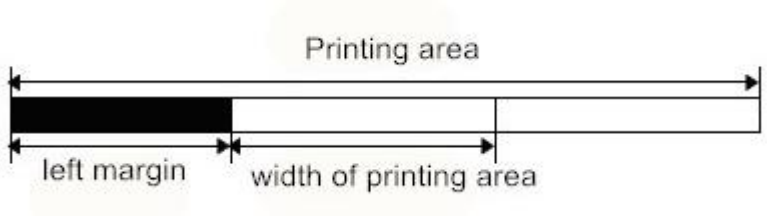
Name	Set line space to default
Code	ASCII : ESC 2 DEC : 27 50 HEX : 1B 32
Function	Set line space to default 30 dots
Range	None
Default	None
Notes	Line space in details pls check ESC 3 command. If the line space setted is less than the height character in the line,the line space of this line is equal to the height of the highest character It can use ESC 3 to define line space.
Example	None

Set print position

Name	Set print position
Code	ASCII : ESC $ nL nH DEC : 27 36 nL nH HEX : 1B 24 nL nH
Function	Set left side blank area as (nL + nH × 256) dots
Range	0 ≤ nL ≤ 255 0 ≤ nH ≤ 255
Default	None
Notes	Set left side blank area as [(nL+nH*256)]*0.125mm] This command is only effective with the initial position of the line. This command is unavailable if it sets beyond the printing area.
Example	None

Set the left margin

Name	Set the left margin
Code	ASCII : GS L nL nH DEC : 29 76 nL nH HEX : 1D 4C nL nH
Function	Set the left margin as (nL + nH × 256) dots
Range	0 ≤ nL ≤ 255 , 0 ≤ nH ≤ 255

Default	None
Support Model	All
Notes	This command is only effective with the initial position of the line. The illustration is as follows:  Use the maximum value of the printable unit,if the setting is beyond the printable area.
Example	1b 40 1d 4c 08 00 30 31 32 0d 0a 30 31 32 0d 0a

Set character printing method

Name	Set character printing method
Code	ASCII : ESC ! n DEC : 27 33 n HEX : 1B 21 n
Function	Set character printing methods (font,highlight,inversion,bold,double hight,double width and underline),parameter n bit defi

	nition as below: **Bit Function Value** **0 1** 0 Font Normal Small character 1 Undefined 2 Undefined 3 Bold Cancel Setting 4 Double hight Cancel Setting 5 Double width Cancel Setting 6 Undefined 7 Underline Cancel Setting
Range	None
Default	n = 0
Notes	The command is effective with Chinese and foreign language s. The command is disabled when ESC@, printer reset or powe r off
Example	1B 40 1B 21 01 30 31 32 0D 0A 1B 40 1B 21 02 30 31 32 0D 0A 1B 40 1B 21 04 30 31 32 0D 0A 1B 40 1B 21 08 30 31 32 0D 0A 1B 40 1B 21 10 30 31 32 0D 0A

	1B 40 1B 21 20 30 31 32 0D 0A 1B 40 1B 21 40 30 31 32 0D 0A 1B 40 1B 21 80 30 31 32 0D 0A

Set character size

Name	Set character size
Code	ASCII : GS ! n DEC : 29 33 n HEX : 1d 21 n
Function	Set character size as 1-8 times width,1-8 times height. Definition is as below: Use 0-3 set character height 4 - 7 bits set character width show as below: **Chart 1 Character width setting** **Chart 2 Character height setting**

HEX	DEC	width
00	0	1(Normal)
10	16	2(double width)

HEX	DEC	height
00	0	1(Normal)
01	1	2(double height)

	20	32	3		02	2	3
	30	48	4		03	3	4
	40	64	5		04	4	5
	50	80	6		05	5	6
	60	96	7		06	6	7
	70	112	8		07	7	8

Range	None
Default	n = 0
Notes	This command is effective with Chinese and other foreign languages, except for HRI character. The command setting is disable when ESC@, printer reset or power off.
Example	1b 40 1d 21 11 30 31 32 0d 0a 30 31 32 0d 0a

Set remove white printing

Name	Set remove white printing
Code	ASCII : GS B n DEC : 29 66 n

	HEX : 1d 42 n
Function	Set and remove white printing When the LSB of n is 0,white printing mode is off. When the LSB of n is 1,white printing mode is on.
Range	None
Default	n = 0
Notes	It is only effective for LSB of n. This command is all effective with built-in characters and user-defined characters. It is effective with blank,which is setted by ESC CP,when white printing mode is on. This command is not effective with bitmap, user-defined bitmap, barcode, HRI character and vaulting space of HT,ESC $. This command is not effective with line space. The white printing mode is prior to underline mode. When it is white printing mode, even underline mode is open, which can also be forbidden.(But it not be canceled). This command is disabled when ESC@, printer reset or power off.
Example	1b 40 1d 42 01

	30 31 32 0d 0a 30 31 32 0d 0a

Set remove underline

Name	Set remove underline
Code	ASCII : ESC - n DEC : 27 45 n HEX : 1B 2D n
Function	Set / remove underline mode,based on the value of n as follow: <table><tr><th>n</th><th>Functions</th></tr><tr><td>0, 48</td><td>Remove underline mode</td></tr><tr><td>1, 49</td><td>Set underline mode(1 dot coarse)</td></tr><tr><td>2, 50</td><td>Set underline mode(2 dot coarse)</td></tr></table>
Range	0 ≤ n ≤ 2, 48 ≤ n ≤ 50
Default	n = 0
Notes	Printer can print underline for all characters(including the space to the right of the character), except for the space set by HT. Printer can not print underline for clockwise rotated 90 ° cha

	racters and white printing characters. When n is setted as 0 or 48,remove underline mode.Other data is not printed as underline,and the setted underline coarseness does not change before removing underline mode.The default underline coarseness is 1 dot. It is not effective with underline coarseness to change character size. Using ESC! can also set and remove underline mode.However be aware that the last received command must be effective.
Example	1b 40 1b 2d 01 30 31 32 0d 0a 1b 40 1b 2d 02 30 31 32 0d 0a 1b 40 1b 2d 00 30 31 32 0d 0a

Set remove 90°revolving printing

Name	Set remove 90°revolving printing
Code	ASCII : ESC V n DEC : 27 86 n HEX : 1B 56 n

Function	Set or remove 90° revolving printing When n is equal to 0 or 48,remove 90°revolving printing. When n is equal to 1 or 49,set 90°revolving printing.
Range	0 ≤ n ≤ 1 , 48 ≤ n ≤ 49
Default	n = 0
Support Model	All
Notes	When it is setted to underline mode, the printer is not underlined for characters rotated 90°. In the 90° rotation mode, the multiplier and double width commands magnify the character in the opposite direction to the multiplier command in the normal mode. When ESC @, printer reset, power off, the setting of this instruction is invalid.
Example	1b 40 1b 56 01 30 31 32 0d 0a 30 31 32 0d 0a

Set printing alignment

Name	Set print alignment (Left, middle, right)
Code	ASCII : ESC a n DEC : 27 97 n

	HEX : 1B 61 n
Function	Align all data in one line,the meaning of n value as below: n mode 0, 48 left 1, 49 middle 2, 50 right
Range	0 ≤ n ≤ 2 or 48 ≤ n ≤ 50
Default	n = 0
Notes	This command setting is disabled when ESC@,printer resets or power off.
Example	1B 40 1B 61 02 30 31 32 0D 0A 1B 40 1B 61 01 30 31 32 0D 0A 1B 40 1B 61 00 30 31 32 0D 0A

Allow and disable keystroke switches

Name	Allow and disable keystroke switches
Code	ASCII : ESC c 5 n DEC : 27 99 53 n HEX : 1B 63 35 n
Function	n=1, Forbid key switch n=0,Allow key switch
Default	n = 0
Notes	None
Example	None

Set Chinese mode

Name	Set Chinese mode
Code	ASCII : FS & DEC : 28 38 HEX : 1C 26
Function	Set Chinese mode
Range	None
Default	None
Notes	When the Chinese character mode is selected, the printer processes all Chinese character codes(ASCII code) , two bytes at a time. The Chinese character code(ASCII code) is processed in the order of the first byte and the second byte.
Example	1b 40 1C 26 B0 AE C9 CF D7 D4 BC BA 0d 0a 1C 2E B0 AE C9 CF D7 D4 BC BA 0d 0a

Exit Chinese character mode

Name	Exit Chinese character mode
Code	ASCII : FS . DEC : 28 46 HEX : 1C 2E
Function	Exit Chinese character mode , cancel Chinese character mode

Range	None
Default	None
Notes	None
Example	None

Select cancel user customized characters

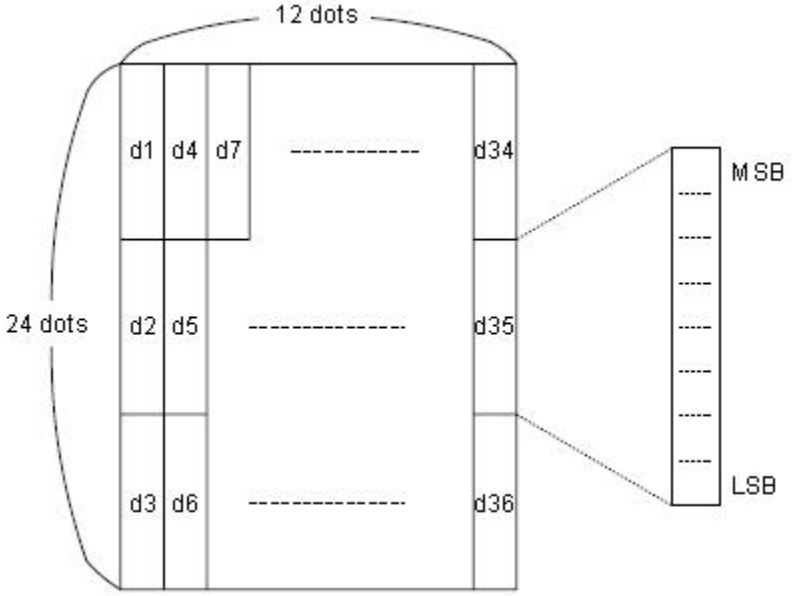
Name	Select cancel user customized characters
Code	ASCII : ESC % n DEC : 27 37 n HEX : 1B 25 n
Function	Select 、cancel user customized characters When n LSB is 0 , delete customized characters When n LSB is 1 , select customized characters
Range	0 ≤ n ≤ 255
Default	0
Notes	When cancel customized characters , automatically select the i nternal character set.
Example	None

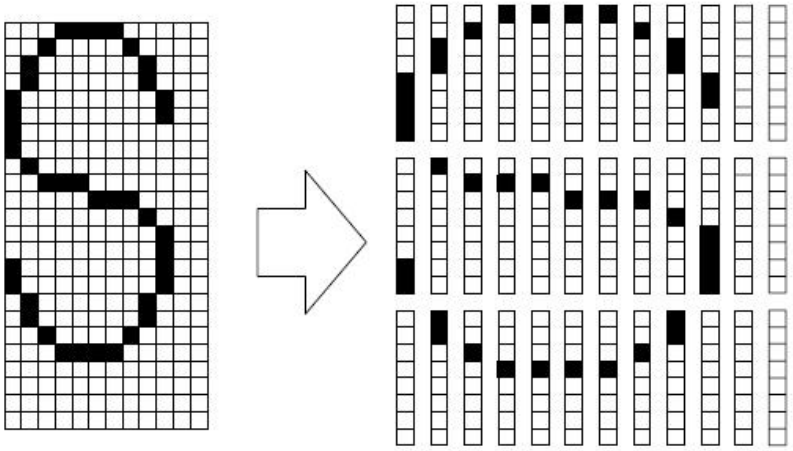
Define user customized characters

Name	Define user customized characters
Code	ASCII : ESC & y c1 c2 [x1 d1 ... d (yx1)] ... [xk d1 ... d(y x k)]

	DEC : 27 38 y c1 c2 [x1 d1 ... d(yx1)] ...[xk d1 ... d(yxk)] HEX : 1B 26 y c1 c2 [x1 d1...d(y x1)]...[xk d1...d(yxk)]
Function	Define user customized characters. y specifies vertical direction bytes. c1 specifies the starting character encoding,c2 specifies the ending character encoding xk specifies horizontal direction dots.
Range	The range of x 、 y , are correspond with internal fonts. If choosing Font 6*12 , y = 2 , 0 ≤ x ≤ 6 If choosing Font 12*24 , y= 3 , 0 ≤ x ≤ 12 32 ≤ c1 ≤ c2 ≤ 126 0 ≤ d1 ... d(y*xk) ≤255
Default	None
Notes	Definable character code range:from<20>H to <7E>H ASCII code(95 characters)。 It can define continuous characters encoding for several characters.When it need one character only,make c1=c2. d is character’ s dot data,dot mode starts from left side in the horizontal direction.It is blank for the rest dots in the right side. Defined user defines characters data is (y*x) byte.

	Set corresponding bit of printing dots as 1, or corresponding bit of no printing dots as 0. This command defines different customized characters for each type of font. Set font with ESC !. Customized characters and downlink bitmaps cannot be defined at the same time. When the command is executed, the downlink bitmap is cleared. User Customized characters will be cleared in these situations: Execute ESC @。 Execute GS *。 Execute ESC ?。 Printer reset or power off Graphic: When set font A(12 24).





d1= <0F>H d4 = <30>H d7 = <40>H . . . .

d2 = <03>H d5 = <80>H d8 = <40>H . . . .

d3 = <00>H d6 =<00>H d9 = <20>H . . . .

Example

①y = 2

1B 40

1b 26 02 20 20 06 FF FF FF FF FF FF FF FF FF FF FF FF

1b 25 01

	20 20 0D 0A 1b 3f 20 30 20 30 20 0d 0a ②y = 3 1B 40 1b 26 03 20 20 06 FF FF FF FF FF FF FF FF FF FF FF FF FF F F FF FF FF FF FF 1b 25 01 20 20 0D 0A 1b 3f 20 30 20 30 20 0d 0a

Cancel user customized characters

Name	Cancel user customized characters
Code	ASCII : ESC ? n DEC : 27 63 n HEX : 1B 3F n
Function	Cancel user customized characters of specified code by n
Range	32 ≤ n ≤ 126
Default	None
Notes	This command terminates the use of styles defined for chara cter encoding, which is specified by n. After the user custom

	ized character is canceled, it is printed in the corresponding mode of the internal character. In the font selected with ESC !, the command removes the s tyle defined for the specified encoding. If a user customized character is not defined, the printer ign ores the command.
Example	None

Selecting international character set

Name	**Selecting international character set**
Code	ASCII : ESC R n DEC : 27 82 n HEX : 1B 52 n
Function	Selecting international character set n from the following tabl e: n Character 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 America 13 Korea 14 Slovenia 15 China
Range	0 ≤ n ≤ 15
Default	0
Notes	None
Example	1B 40 1B 52 00 20 21 22 23 24 25 26 27 28 29 2A 2B 2C 2D 2E 2F 30 31 3 2 33 34 35 36 37 38 39 3A 3B 3C 3D 3E 3F 40 41 42 43 44 45 46 47 48 49 4A 4B 4C 4D 4E 4F 50 51 52 53 54 55 56 57 58 59 60 6A 6B 6C 6D 6E 6F 70 71 72 73 74 75 76 78 7 9 7A 7B 7C 7D 7E 0D 0A

Select character code

Name	Select character code

Code	ASCII : ESC t n DEC : 27 116 n HEX : 1B 74 n
Function	Selects n from character code N **Code Page** 0 CP437 [U.S.A., Standard Europe] 1 KataKana 2 CP850 [Multilingual] 3 CP860 [Portuguese] 4 CP863 [Canadian-French] 5 CP865 [Nordic] 6 WCP1251 [Cyrillic] 7 CP866 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 27 CP720[Arabic] 28 CP855 29 CP857[Turkish] 30 WCP1250[Central Europe] 31 CP775 32 WCP1254[Turkish] 33 WCP1255[Hebrew] 34 WCP1256[Arabic] 35 WCP1258[Vietnam] 36 ISO-8859-2[Latin 2] 37 ISO-8859-3[Latin 3] 38 ISO-8859-4[Baltic]

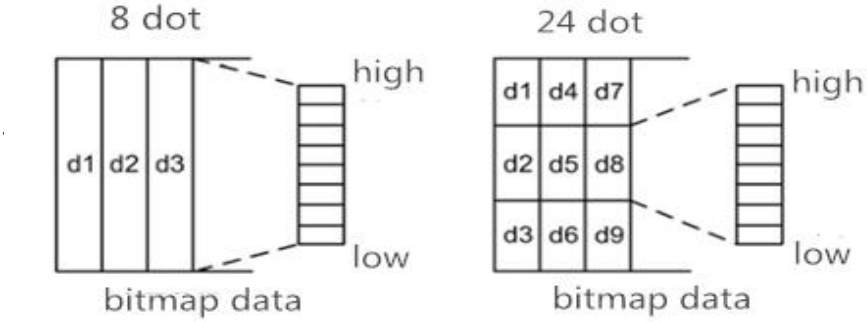
	39 ISO-8859-5[Cyrillic] 40 ISO-8859-6[Arabic] 41 ISO-8859-7[Greek] 42 ISO-8859-8[Hebrew] 43 ISO-8859-9[Turkish] 44 ISO-8859-15 [Latin 9] 45 Thai2 46 CP856 47 Cp874 252 CP932 SHIFT_JIS 253 UNICODE UCS-2 254 BIG5 255 GBK
Range	0 ≤ n ≤ 255
Default	0
Notes	None
Example	1B 40 1C 2E 1B 74 00 80 81 82 83 84 85 86 87 88 89 8A 8B 8C 8D 8E 8F 90 91 9 2 93 94 95 96 97 98 9A 9B 9C 9D 9E 9F A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 AA AB AC AD AE AF B0 B1 B2 B3 B4 B5 B 6 B7 B8 B9 BA BB BC BD BE BF C0 C1 C2 C3 C4 C5 C6 C7

	C8 C9 CA CB CC CD CE CF D0 D1 D2 D3 D4 D5 D6 D7 D8 D9 DA DB DC DD DE DF E0 E1 E2 E3 E4 E5 E6 E7 E8 E9 EA EB EC ED EE EF F0 F1 F2 F3 F4 F5 F6 F7 F8 F9 FA FB FC FD FE FF 0D 0A

③Graphic printing command

Fill Graphics vertical module data

Name	Fill Graphics vertical module data
Code	ASCII : ESC * m Hl Hh [d]k DEC : 27 42 m Hl Hh [d]k HEX : 1B 2A m Hl Hh [d]k
Function	Print vertical module graphic data,the parameters are as below: m is bit map format: m mode horizontal scale vertical scale 0 8dots single density ×2 ×3 1 8dots double density ×1 ×3 32 24dots single density ×2 ×1 33 24dots double density ×1 ×1 Hl、Hh is horizontal direction dots(Hl＋256×Hh) [d]k is bit map data K used for indicating bit map data bytes,not for transfer.

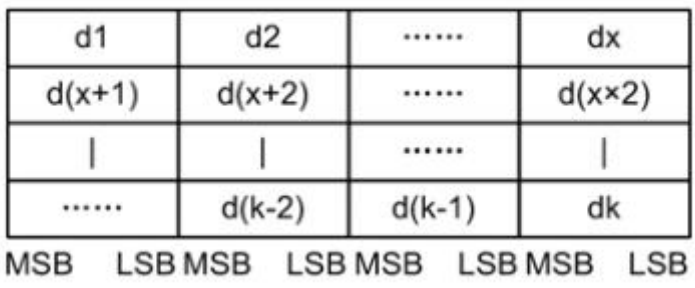
Parameter range	XX58 : m = 0、1、32、33 1 ≤ Hl + Hh × 256 ≤ 384 0 ≤ d ≤ 255 k = Hl + Hh × 256 (when m = 0、1) k = (Hl + Hh × 256) × 3 (when m = 32、33) XX80 : m = 0、1、32、33 1 ≤ Hl + Hh × 256 ≤ 576 0 ≤ d ≤ 255 k = Hl + Hh × 256 (when m = 0、1) k = (Hl + Hh × 256) × 3 (when m = 32、33)
Default	None
Notes	[d]k corresponding bit is 1,which means that this bit can print. While it is 0,it means that this bit can not print. The part of graphics horizontal direction which exceeds the  s The command fills only the printing buffer, graphics printing can start only after receiving the printing commands.Printing buffer will be cleared after graphic printing. If you need to print higher graphics,you can divide it into several sections which has 8 (m = 0、1) or 24 (m = 32、33) dots graphics to print. After filling graphic data,you can continue to fill other in

	formation to make graphic and other information print simul taneously. After filling bitmap,you can use ESC J(n=24) command to print, and also can use LF command to print.But using LF c ommand will cause paper feeding(feeding paper according to the line space),and make graphic continuous between differ ent lines.And can set line space as 0 to avoid feeding too m uch.(Dot matrix printer may drift when it starts,pls send data continuously if occurs line broken.
Example	1B 40 1b 2a 00 0C 00 FF FF FF FF FF FF FF FF FF FF FF FF 1B 33 00 0A

Print Graphics horizontal module data

Name	Print Graphics horizontal module data
Code	ASCII : GS v 0 DEC : 29 118 48 m xL xH yL yH [d]k HEX : 1D 76 30 m xL xH yL yH [d]k
Function	Print horizontal module graphic data,the parameters are as b elow: m as bitmap method :

	m Model Horizontal scale Vertacal scale 0,48 Normal × 1 × 1 1,49 Double-width × 2 × 1 2,50 Double-height × 1 × 2 3,51 Quadruple × 2 × 2 xL、xH were selected as the data bytes (xL+xH×256) in the horizontal direction for the bitmap. yL, yH were selected as the data bytes (yL+yH×256) in the vertical direction for the bitmap. [d]k for bitmap data k for bitmap data bytes , k used for indicating, not for transfer.
Parameter range	XX58 : 0 ≤ m ≤ 3 ; 48 ≤ m ≤ 51 1 ≤ xL + xH×256 ≤ 48 0 ≤ yL ≤255 , 0 ≤ yH ≤255 0 ≤ d ≤ 255 k = (Hl + Hh×256)×(yL + yH×256) XX80 : 0 ≤ m ≤ 3 ; 48 ≤ m ≤ 51 1≤ xL + xH×256 ≤ 72 0 ≤ yL ≤ 255 , 0 ≤ yH ≤ 255

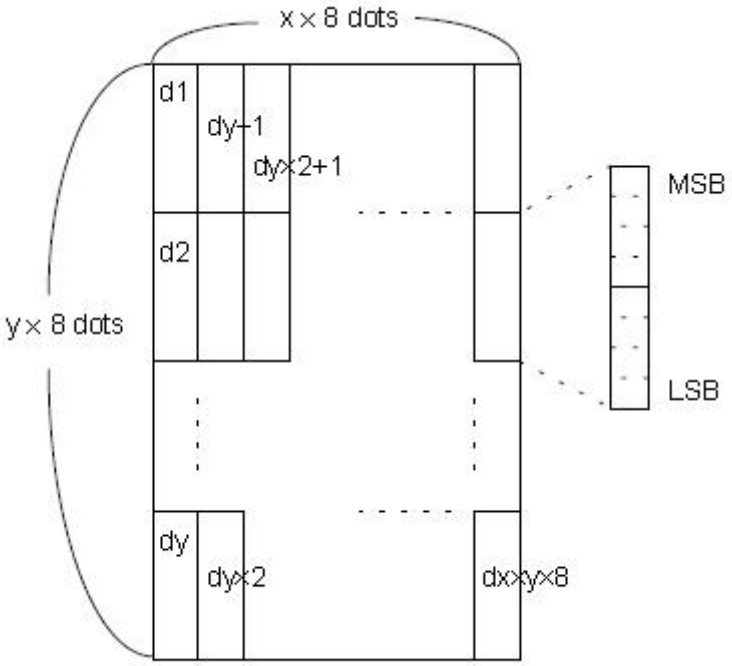
<table>
<tr><td></td><td>0 ≤ d ≤ 255
k = (Hl + Hh×256)×(yL + yH×256)</td></tr>
<tr><td>Default</td><td>None</td></tr>
<tr><td>Notes</td><td>[d] k corresponding bit is 1,which means that this bit can print. While it is 0,it means that this bit can not print.
If the horizontal bytes exceed printing area, then the exceeding part will be ignored.
The paper feeds accordingly to the image size when this commanding is using, not influenced by the setting of ESC 2, ESC 3 line space.
After this command, the printing coordinates will be reset to the left margin and the image content will be cleared.
the relationship between bitmap data and the printing effect is as below:
 

This command has the printing function, data will be transferred while printing, no need to use the printing command again</td></tr>
<tr><td>Example</td><td>1B 40</td></tr>
</table>

	1d 76 30 00 03 00 09 00 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF

Define downloaded bitmap

Name	Define downloaded bitmap
Code	ASCII : GS * x y d1...d(x×y×8) DEC : 29 42 x y d1 ...d(x×y×8) HEX : 1D 2A x y d1...d(x×y×8)
Function	using x and y to appoint dots to define the downloaded bit map x appoints that the horizontal dots as 8*x. y appoints that the vertical dots as 8*y.
Parameter range	1 ≤ x ≤ 255 1 ≤ y ≤ 48 x*y ≤ 1536 0 ≤ d ≤ 255
Default	None
Notes	If x*y is out of the specified range, this command will be forbidden. The d indicates bitmap data. Data (d) specifies the printing bit as 1 and the not printing bit as 0.

	The downloaded bitmap definition will be cleared when: ESC @ is executed. ESC & is executed. Printer is reset or the power is turned off. The following figure shows the relationship between the downloaded bitmap and the printed data 
Example	1B 40 1D 2A 03 03 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF

	FF FF FF FF 1D 2F 00

Print downloaded bitmap

Name	Print downloaded bitmap
Code	ASCII : GS / m DEC : 29 47 m HEX : 1D 2F m
Function	Prints a downloaded bitmap using the mode specified by m. Using the mode that m appointed to print downloaded bitmap

m	Model
0, 48	Normal
1, 49	Double-width
2, 50	Double-height
3, 51	Quadruple

Parameter range	0 ≤ m ≤ 3 48 ≤ m ≤ 51
Default	None
Notes	this command will be ignored if the bitmap data has not been defined. In standard mode, this command is effective only when t

	here is no data in the buffer area. This command has no effect in the print modes (emphasized, double-strike, downloadedline, character size, or white/black reverse printing), except for upsidedown printing mode. If the downloaded bitmap which will be printed exceeds the printing area, then the excess data will not be printed.
Example	No

Define NV bitmap

Name	Define NV bitmap
Code	ASCII : FS q n [xL xH yL yH d1...dk]1...[xL xH yL yH d1...dk]n DEC :28 113 n [xL xH yL yH d1...dk]1...[xL xH yL yH d1...dk]n HEX : 1C 71 n [xL xH yL yH d1...dk]1...[xL xH yL yH d1...dk]n
Function	Define the NV bitmap using the specified n. n specifies the number of the defined NV bitmap. xL, xH means that the defined NV bitmap specifies the horizontal dots as (xL+xH*256)*8 yL, yH means that the defined NV bitmap specifies the vertical dots as (yL + yHx256)*8

Parameter range	1 ≤ n ≤ 255 0 ≤ xL ≤ 255 0 ≤ xH ≤ 3 (1 ≤ (xL+xH*256) ≤ 1023) 0 ≤ yL ≤ 255) 0 ≤ yH ≤ 1 (1 ≤ (yL+yH*256) ≤ 288) 0 ≤ d ≤ 255) k = (xL+xH*256)*(yL+yH*256)*8 Totaled the defined data Area = 64 k bytes
Default	None
Support Model	All
Notes	Frequent writing command executions may damage the NV memory. Therefore, it is recommended to write the NV memory no more than 10 times per day. The printer performs a hardware reset operation after the procedure of placing the image into the NV memory. Therefore, user-defined characters, downloaded bitmaps should be defined only after completing this command. The printer clears the receiving and printing buffers and resets the printer t

o the mode that workable when power on. (hardware reset i nterface is not supported)

This command cancels all NV bitmaps that have already b een defined by this command.

From the beginning of the processing of this command t ill the accomplishment of hardware reset, mechanical operati ons (including initializing the position of the print head whe n the cover is open, paper feeding using the FEED button, e tc.) cannot be performed.

During this command processing, the printer is busy and stops receiving data when writing data to the user's NV me mory. Therefore, data transmission, including real-time comm ands, is prohibited during the execution of this command.

NV bitmap is a bitmap defined in non-volatile memory, Define FS p printing with FS q.

In standard mode, this command is valid only when proc essed at the beginning of the line.

This command is valid when 7 bytes <FS yH> of the co mmand are processed normally.

When the data volume exceeds the left capacity of the r ange defined by xL, xH, yL, and yH, the printer will process t he range defined by xL, xH, yL, and yH outside the defined

range.

In the first group of NV bitmaps, when any one of xL, xH, yL, yH is out of the definition range, this command is disabled.

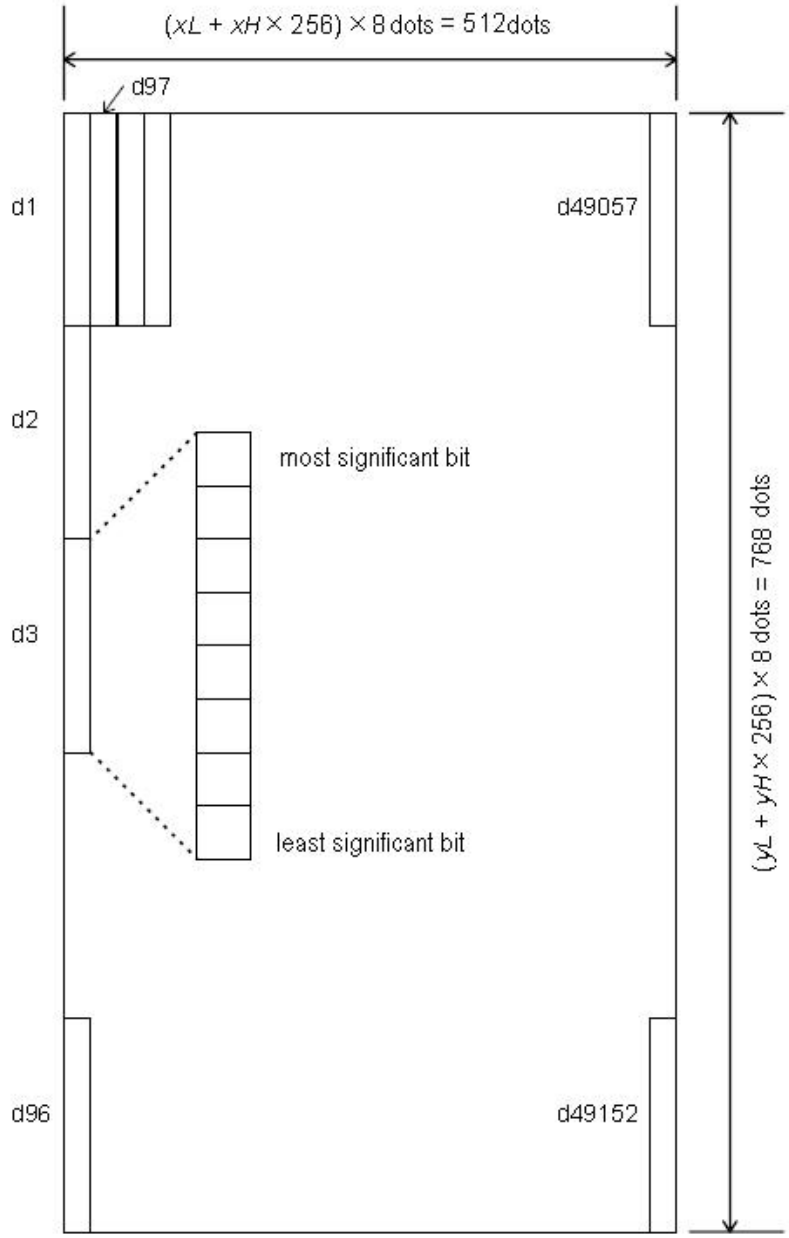
In groups of NV bitmaps other than the first group, when xL, xH, yL, yH out of the defined range, it stops processing this command and starts writing into the NV images. At this time, NV bitmaps that haven' t been defined are disabled (undefined), but any NV bitmaps before that are enabled.

The d indicates the definition data. In data (d) a 1 bit specifies a dot to be printed and a 0 bit specifies a dot not to be printed.

This command defines n as the number of a NV bitmap. Numbers rise in order from NV bitmap 01H. Therefore, the first data group [xL xH yL yH d1...dk] is NV bitmap 01H, and the last data group [xL xH yL yH d1...dk] is NV bitmap n. The total agrees with the number of NV bitmaps specified by the command FS p.

The definition data for an NV bitmap consists of [xL xH yL yH d1...dk]. Therefore, when only one NV bitmap is defined n=1, the printer processes a data group [xL xH yL yH d1...dk] once. The printer uses ([data: (xL xH× 256)×(yL

	yH× 256)×8] [header :4]) bytes of NV memory. The definition area in this printer is a maximum of 192K bytes. This command can define several NV bitmaps, but can not define bitmap data whose total capacity [bitmap data header] exceeds 192K bytes. The printer does not transmit ASB status or perform status detection during processing of this command even when ASB is specified. Once an NV bitmap is defined, it is not erased by performing ESC @, reset, and power off. This command performs only definition of an NV bitmap and does not perform printing. Printing of the NV bitmap is performed by the FS pcommand. Diagram : when xL = 64, xH = 0, yL = 96, yH = 0



Example

1B 40

1C 71 01 03 00 03 00

FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF

FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF

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

Print NV bitmap

Name	Print NV bitmap
Code	ASCII : FS p n m DEC : 28 112 n m HEX : 1C 70 n m
Function	Print NV bitmap n using the mode specified by m. <table><tr><th>m</th><th>Mode</th></tr><tr><td>0, 48</td><td>Normal</td></tr><tr><td>1, 49</td><td>Double-width</td></tr><tr><td>2, 50</td><td>Double-height</td></tr><tr><td>3, 51</td><td>Quadruple</td></tr></table>
Parameter range	0 ≤ m ≤ 3 48 ≤ m ≤ 51 1 ≤ n ≤ 255

Default	None
Support	All
Notes	n is the number of the NV bitmap (defined using the FS q command). m specifies the bitmap mode. NV bitmap is a bitmap defined in non-volatile memory by FS q and printed by FS p. This command is not effective when the specified NV bitmap has not been defined. In standard mode, this command is effective only when there is no data in the print buffer. This command is not affected by print modes (Bold printing, overlapping,underline, character size, white/black reverse printing, or 90° rotated characters, etc.), except upside-down printing mode. If the downloaded bit-image to be printed exceeds one line, the excess data is not printed. This command feeds dots (for the height n of the NV bitmap) in normal and double-width modes, and (for the height n 2 of the NV bitmap) in double height and quadruple modes, regardless of the line space specified by ESC 2 or

	ESC 3. After printing the bitmap, this command sets the print position to the beginning of the line and processes the data that follows as normal data.
Example	None

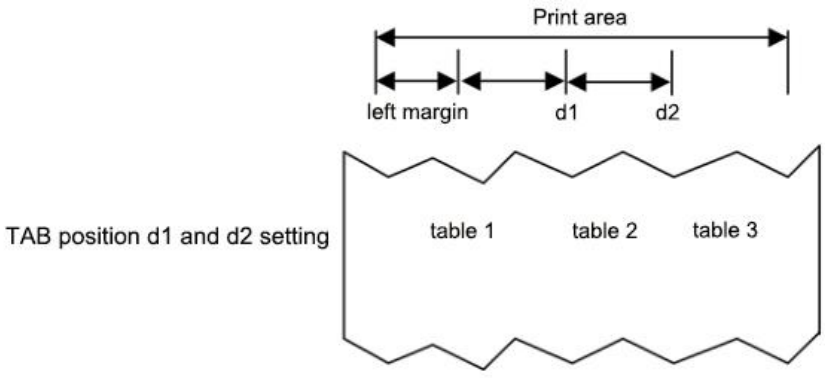
④Tab Commands

Horizontal tab

Name	Horizontal tab
Code	ASCII : HT DEC : 9 HEX : 09
FUNCTION	Move the print position to the next tab position
Parameter range	None
Defaults	None
Notes	Tab position set by ESC D If the tab position is not set(the default is no horizontal position),this command will be treated as an LF command If the tab position exceeds the print area,the coordinates will move to the star position of the next line(as the data is full,print and wrap)

Example	none

Horizontal tab position setting

Name	horizontal tab position setting
Code	ASCII : ESC D [d]k NUL DEC : 27 68 [d]k 0 HEX : 1B 44 [d]k 00
Function	Set horizontal tab position, parameter meaning as below: d1 ... dk : horizontal position,in 8 as unit,null as the terminator
Parameter range	XX58 : 1 ≤ d ≤ 46 (d1 <d2 < ..... dk , 1 ≤ k ≤ 16) XX80 : 1 ≤ d ≤ 70 (d1 < d2 < ..... dk , 1 ≤ k ≤ 16)
Defaults	The default positioning position is the 8-character interval(Column 9 17 25...) of the font A(12-24)
Support model	All
Notes	Tab position as below : 

	Maximum support for the setting of 16 tab position Using this command,the setting of previous tab position will be canceled k is for indication purpose,no transmission When transport [d]k,and come across NULL,should be considered over If dk less than or equal to dk-1,should be considered over,and balance data is treated as normal data processing TAB position could be changed by HT command When the left margin changes, the TAB position changes simultaneously The command setting will be valid after ESC @、printer reset、power off
Example	1B 44 04 06 08 0A 00 09 30 09 31 09 32 09 33 0D 0A

⑤One-dimension bar code command

1D bar code readable character(HRI) print position setting

Name	1D bar code readable character(HRI)print position setting
Code	ASCII : GS H n DEC : 29 72 n HEX : 1D 48 n
Function	Set 1D bar code readable character(HRI)print position,n parameter meaning as below :

	n print position 0 , 48 don’ t print 1 , 49 above the bar code 2 , 50 below the bar code 3 , 51 above and below the bar code
Parameter range	0 ≤ n ≤ 3 or 48 ≤ n ≤ 51
Defaults	n = 0
Notes	The command setting will be valid after ESC @、printer reset、power off
Example	None

1D bar code readable character(HRI)font type selection

Name	1D bar code readable character(HRI)font type selection
Code	ASCII : GS f n DEC : 29 102 n HEX : 1D 66 n
Function	Select a font for the HRI character to be used when print the bar code The relationship between n and selection contents as below

n	Font
0,48	Font A (12*24)

	1,49	Font B (9*17)	
Parameter range	n =0,1,48,49		
Defaults	n = 0		
Notes	None		
Example	None		

1D bar code height setting

Name	1D bar code height setting
Code	ASCII : GS h n DEC : 29 104 n DEX : 1D 68 n
Function	Parameter n specifies the height of a bar code in dots :  Height 50  Height 100
Parameter range	1 ≤ n ≤ 255
Defaults	n = 64
Notes	The command setting will be valid after ESC @、printer reset、power off
Example	None

1D bar code width setting

Name	1D bar code width setting
Code	ASCII : GS w n DEC : 29 119 n HEX : 1D 77 n
Function	Parameter n specifies the unit of a bar code in dots :  Width 3  Width 4
Parameter range	1 ≤ n ≤ 6
Defaults	n = 2
Noted	The command setting will be valid after ESC @、printer reset、power off
Example	None

1D bar code printing

Name	1D bar code printing
Code	**(A)** ASCII : GS k m [d]k NUL DEC : 29 107 m [d]k NUL Hex : 1D 6B m [d]k NUL

<table>
<tr><td></td><td>(B) ASCII : GS k m n [d]k
DEC : 29 107 m n [d]k
Hex : 1D 6B m n [d]k</td></tr>
<tr><td>Function</td><td>1D bar code printing,the parameters meaning as below :
m is encoding
n is code data length,only for (command B),the difference be tween (A) and (B)is that the data (A) end with NULL,but (B) i ndicates the data length
[d]k is bar code data
K is the length of the bar code data,for sign,no transmission

Parameters relationship as below:
(Command A)
<table>
<tr><td rowspan="2">m</td><td rowspan="2">Coding system</td><td colspan="4">Bar code length (SP show space)</td></tr>
<tr><td>Data length</td><td>k</td><td>Character set</td><td>Data (d)</td></tr>
<tr><td>0</td><td>UPC-A</td><td>fixed</td><td>k = 11 , 12</td><td>0~9</td><td>48≤d≤57</td></tr>
<tr><td>1</td><td>UPC-E</td><td>fixed</td><td>6≤k≤8 ,
k = 11 , 12</td><td>0~9</td><td>48≤d≤57
[when k =</td></tr>
</table>
</td></tr>
</table>

					7,8,11,12 , d1 = 48]
2	JAN13 (EAN13)	fixed	k = 12 , 13	0~9	48≤d≤57
3	JAN8 (EAN8)	fixed	k = 7 , 8	0~9	48≤d≤57
4	CODE39	changeable	1≤k	0~9 , A~Z SP , $, % , * , + , - , . , /	48≤d≤57 , 65≤d≤90 , d = 32 , 36 , 37 , 42 , 43 , 45 , 46 , 47
5	ITF (Interleaved 2 of 5)	changeable	2≤k≤255 (even numbers)	0~9	48≤d≤57
6	CODABAR (NW-7)	changeable	1≤k	0~9 , A~D , a~d $, + , - , . , / ;	48≤d≤57 , 65≤d≤68 , 97≤d≤100 , d = 36 , 43 , 45 , 46 , 47 ,

					58 (65≤d1≤68 , 65≤dk≤68 , 97≤d1≤100 , 97≤dk≤100)

(Command B)

m	Coding system	Bar code length (SP show space)			
		Data length	n	Character set	Data (d)
65	UPC-A	fixed	n = 11 , 12	0~9	48≤d≤57
66	UPC-E	fixed	6≤n≤8 , n = 11 , 12	0~9	48≤d≤57 [when n = 7,8,11,12 , d1 = 48]
67	JAN13 (EAN13)	fixed	n = 12 , 13	0~9	48≤d≤57

	68	JAN8 (EAN8)	fixed	n = 7 , 8	0~9	48≤d≤57
	69	CODE39	changeable	1≤n	0~9 , A~Z SP , $, % , * , + , - , . , /	48≤d≤57 , 65≤d≤90 , d = 32 , 36 , 37 , 42 , 43 , 45 , 46 , 47
	70	ITF (Interleaved 2 of 5)	changeable	2≤n≤255 (even numbers)	0~9	48≤d≤57
	71	CODABAR (NW-7)	changeable	1≤n	0~9 , A~D , a~d $, + , - , . , / , :	48≤d≤57 , 65≤d≤68 , 97≤d≤100 , d = 36 , 43 , 45 , 46 , 47 , 58 (65≤d1≤68 , 65≤dk≤68 , 97≤d1≤100 , 97≤dk≤100)

	72	CODE93	changeable	1≤n≤255	00H~7FH	0≤d≤127
	73	CODE128	changeable	1≤n≤255	00H~7FH C1H~C4H(FNC)	0≤d≤127 d = 193 , 194,195,196
	74	UCC/EAN128	changeable	1≤n≤255	00H~7FH C1H~C4H(FNC)	0≤d≤127 d = 193 , 194,195,196
Parameter range	(A) 0 ≤ m ≤ 6 (B) 65 ≤ m ≤ 74					
Defaults	None					
Notes	If the bar code width exceed the printable area,the printer does not perform barcode printing Paper feed as needed when the command is carried out,that not affected by ESC2,ESC3 line space settings,and do not influence line space settings The command is not affected by ESC ! character style setting					

The print position is resorted to the print start location after the command is executed

m parameter 0 ~ 6(A) and 65 ~ 71(B) select the same codin g system,the same printing effect

m parameter is 0 ~ 6(A),barcode data end with NULL

m parameter is 65 ~ 74(B),barcode data n stand for data le ngth

K is for sign,no transmission

When print UPCA (m = 0 or 65) ,Please pay attention for th e following points:

Whatever the input data length is 11 or 12,the check bit is automatically inserted or corrected

Initial character,central split character,and terminator are i nserted automatically

When print UPCE (m = 1 or 66) ,Please pay attention as foll owing:

The system character (NSC) 0 will be inserted automatical ly when data

length is 6

The first system character (NSC) d1 must be 0 when the data length is 7,8,11 and 12.

Whatever the data length is 6,7,8,11 and 12,the check bit inserted or corrected automatically

Whatever the input data length is 6,7,8,11,and 12,the bar code readable character(HRI) just show 6 as data,but exclude d system character (NSC) and check code;

The transition relation between transmission and printing data as below:

Transmitted data										Printed data					
d2	d3	d4	d5	d6	d7	d8	d9	d10	d11	d1	d2	d3	d4	d5	d6
0~9	0~9	0	0	0	-	-	0~9	0~9	0~9	d2	d3	d9	d10	d11	0
0~9	0~9	1	0	0	-	-	0~9	0~9	0~9	d2	d3	d9	d10	d11	1
0~9	0~9	2	0	0	-	-	0~9	0~9	0~9	d2	d3	d9	d10	d11	2
0~9	0~9	3~9	0	0	-	-	-	0~9	0~9	d2	d3	d4	d10	d11	3
0~9	0~9	0~9	1~9	0	-	-	-	-	0~9	d2	d3	d4	d5	d11	4
0~9	0~9	0~9	0~9	1~9	-	-	-	-	5~9	d2	d3	d4	d5	d6	d11

When d6 is 1~9,be sure d7,d8,d9,d10 are 0,and d11 is 5~9

Initial character,terminator automatically inserted

When print EAN13(m = 2 or 67),Please pay attention as follo wing:

Whatever the input data length is 12 or 13,check bit is a utomatically inserted or corrected

Initial character,central split character and terminator inse rted

	automatically When print EAN8(m = 3 or 68),please pay attention as follo wing: Whatever input data length is 7 or 8,the check bit is automa tically inserted or corrected Initial character,central split character and terminator inse rted automatically When print CODE39(m = 4 or 69),please pay attention as fol lowing: When d1 or dn are not Initial character/terminator " *" , encoder is automatically inserted " *" When middle of the data encounter " *" , the encoder re gard it as terminator, the other data as the normal data; The check bit could not calculate and add automatically When print ITF25(m = 5 or 70), please pay attention as follo wing: Initial character and terminator inserted automatically The check bit could not calculate and add automatically When print CODABAR (NW-7) (m = 6 or 71),please pay atte ntion as following:

	Initial character and terminator could not inserted automatically,but manual addition by user, that the range from "A" ~" D" or "a" ~" d" Check bit could not calculate and add automatically When print CODE93(m = 72),please pay attention as following: Initial character and terminator inserted automatically The two check code are automatically calculated and then inserted When barcode readable character(HRI) is set to print, there is no HRI character which indicating start/end When barcode readable character(HRI) is set to print,the control character will be replaced with space When print CODE128(m = 73),please pay attention as following: The encoding system intelligently identifies data and implements minimum length encoding without the user set character (include starting character set) or switch character Function character FNC1~FNC4 use C1H~C4H and input it The check bit could calculate and add automatically When barcode readable character(HRI) is set to print,the

control character and FNC1~FNC4 will be replaced with spac e

When print EAN128(m = 74),please pay attention as followin g:

Basic construction as below:

Initial c haracte r set	FNC1	AI	Data p art	Check bit A	Check bit B	Terminat or
Inserted auto matically		(d1...dk)			Inserted automa tically	

Connection structure as below:

Initi al c har act er set	FN C1	AI	Dat a p art	Che ck bit A	FN C1	AI	Dat a p art	Che ck bit A	Che ck bit B	Ter min ato r
Inserted automati			(d1...dk)						Inserted automati	

	cally | | cally The encoding system intelligently identifies data and implements minimum length encoding without the user set character (include starting character set) or switch character Function character FNC1~FNC4 use C1H~C4H and input it User input data AI,which do not need “(“”)” for indication,encoding system inserted automatically,otherwise it will be wrong.For example,GS k 74 18 "019501234567890*", 01 is AI,the following will be wrong:GS k 74 18 "(01)9501234567890*" When user use the connection structure,need to inset FNC1(C1H” Decimal=193”) in the middle.The input example as following: GS k 74 18 "019501234567890*" 193 "029501234567890*" When barcode readable character(HRI) is set to print,the control character will be replaced with space,then cancel FNC1~FNC4
Example	1b 40 1d 48 02 1d 6b 41 0c 31 32 33 34 35 36 37 38 39 30 31 32

	1d 6b 42 0c 30 32 33 34 35 36 30 30 30 30 38 39 1d 6b 43 0c 30 32 33 34 35 36 30 30 30 30 38 39 1d 6b 44 08 30 32 33 34 35 36 30 30 1d 6b 45 08 30 32 33 34 35 36 30 30 1d 6b 46 08 30 32 33 34 35 36 30 30 1d 6b 47 08 41 32 33 34 35 36 30 41 1d 6b 48 08 41 30 32 33 34 35 36 41 1d 6b 49 08 41 30 32 33 34 35 36 41

⑥Status querying Commands

Real-time transmission status

Name	Real-time transmission status
Code	ASCII ：DLE EOT n DEC ：16 4 n HEX ：10 04 n
Function	According to below parameters, transit the real-time status of printer,n stands for printer status: N=1:transmit printer status N=2:transmit off-line status N=3:transmit error status N=4:transmit paper sensor status
Range	1 ⩽ n ⩽ 4

<table>
<tr><td>Default</td><td>None</td></tr>
<tr><td>Support</td><td>All</td></tr>
<tr><td>Notes</td><td>•Printer return to the relative status immediately after receiving the command
• this command try not to put in command list between 2 or more bite .
Though printer being forbid by ESC=,this command still effective.
Printer transmit current situation ,each situation show by 1 bite data.
It is not sure host computer will receive printer transmit situation.
Printer executed immediately after received the command.
The command only effective for serial printer.Printer start to work immediately after receiving this command at any situation.
n=1：printer status
<table>
<tr><td>Bit</td><td>0 / 1</td><td>Hexadecimal</td><td>decimalism</td><td>Function</td></tr>
<tr><td>0</td><td>0</td><td>00</td><td>0</td><td>Fixed to be 0</td></tr>
</table>
</td></tr>
</table>

1	1	02	2	Fixed to be 1
2	0	00	0	Two drawers kick(no drawer, fixed to be 0)
	1	04	4	Turn off two cashbox
3	0	00	0	On-line
	1	08	8	Off-line
4	1	10	16	Fixed to be 1
5，6		--	--	undefined
7	0	00	00	The paper has been torn away
	1	80	96	The paper hasn’t been torn away

n=2：transit off-line status

bite	0/1	Hexadecimal	decimalism	Function
0	0	00	0	Fixed to be 0
1	1	02	2	Fixed to be 1
2	0	00	0	Turn off upper cover

	1	04	4	Open upper cover
3	0	00	0	Not press feed key
	1	08	8	press feed key
4	1	10	16	Fixed to be 1
5	0	00	0	Paper adequate
	1	20	32	Paper shortage
6	0	00	00	No error
	1	40	64	Error
7	0	00	0	Fixed to be 0

n=3：transmit error status

bit e	0 / 1	Hexadecimal	decimalism	Function
0	0	00	0	Fixed to be 0
1	1	02	2	Fixed to be 1
2		--	--	Undefined
3	0	00	0	No cutter error
	1	08	8	Cutter error
4	1	10	16	Fixed to be 1
5	0	00	0	No unrecoverable error

	1	20	32	Unrecoverableerroe
6	0	00	00	Printer head tempand voltage are normal
	1	40	64	Printer head temp.and voltage are exceed
7	0	00	0	Fexed to be 0

Unrecoverable error: abnormal input voltage

Automatic recovery error: refers to the printing head overheating error. When the printing head overheating error occurs, wait for a period of time. When the printing head temperature drops, the error will be automatically recovered.

n=4：paper sensor status

bite	0/1	Hexadecimal	decimalism	Function
0	0	00	0	Fixed to be 0
1	1	02	2	Fixed to be 1
2，3	0	00	0	Paper
	1	0C	12	Paper near-end
4	1	10	16	Fixed to be 1
5，6	0	00	0	Paper

		1	60	96	Paper end
	7	0	00	0	Fixed to be 0
Example	10 04 01 10 04 02 10 04 03 10 04 04				

⑦Printing QR code

Mode type of QR code

Name	Mode type of QR code
Code	ASCII : GS (k pL pH cn fn n Decimal : 29 40 107 pL pH cn fn n Hexadecimal : 1D 28 6b pL pH cn fn n
Function	Setting mode type of two-dimension bar code to [n dot × n dot].
Parameter range	pL=3, pH=0 cn=49 fn=67 0 ≤ n ≤ 16
Default	n=3
Notes	Setting mode type of QR code to [n dot × n dot].
Example	None

Name	Mode type of QR code

Setting error correction level of QR code

Name	Setting error correction level of QR code
Code	ASCII : GS (k pL pH cn fn n DEC : 29 40 107 pL pH cn fn n HEX : 1D 28 6b pL pH cn fn n
Function	Setting error correction level of QR code
Parameter range	pL=3, pH=0 cn=49 fn=69 48 ≤ n ≤ 51
Default	n=48
Notes	Setting error correction level of QR code

n	Function	Approximate Amount of correction
48	Error correction level (L)	7%
49	Error correction level (M)	15%
50	Error correction level (Q)	25%
51	Error correction level (H)	30%

Example	None
Name	Setting error correction level of QR code

Store QR code data to QR code data buffer

Name	Store QR code data to QR code data buffer
Code	ASCII : GS (k pL pH cn fn m d1...dk DEC : 29 40 107 pL pH cn fn m d1...dk HEX : 1D 28 6b pL pH cn fn m d1...dk
Function	Store QR code data to QR code data buffer
Parameter range	4 ≤ (pL + pH×256) ≤ 7092 (0 ≤ pL ≤ 255, 0 ≤ pH ≤ 28) cn=49 fn=80 m=48 0 ≤ d ≤ 255 k = (pL + pH×256) - 3
Default	No
Notes	Store QR code data (d1...dk) to data buffer. ((pL + pH×256) - 3) bytes is processed as a graphic data after the m (d1... dk).
Example	None
Name	Store QR code data to QR code data buffer

Printing QR code

Name	Printing QR code
Code	ASCII : GS (k pL pH cn fn m DEC : 29 40 107 pL pH cn fn m HEX : 1D 28 6b pL pH cn fn m
Function	Printing QR code
Parameter range	pL=3, pH=0 cn=49 fn=81 m=48
Default	None
Notes	Printing QR code. Users must consider QR code graph space. (The space of up and down, left and right of QR code graph is specified in the specification.)
Example	1b 40 1d 28 6b 03 00 31 43 03 1d 28 6b 03 00 31 45 30 1d 28 6b 06 00 31 50 30 41 42 43 1b 61 01 1d 28 6b 03 00 31 52 30 1d 28 6b 03 00 31 51 30

Name	Printing QR code

Setting QR code graph information

Name	Setting QR code graph information
Code	ASCII : GS (k pL pH cn fn m DEC : 29 40 107 pL pH cn fn m HEX : 1D 28 6b pL pH cn fn m
Function	Setting QR code graph information The detailed graph information is as follows:

Transmit data	Hexadecimal	Decimal	Data type
Header	37H	55	1byte
Flag	36H	54	1byte
Width	30H-39H	48-57	1-5byte
Separator	1FH	31	1byte
Height	30H-39H	48-57	1-5byte
Separator	1FH	31	1byte
Fixed Value	31H	49	1byte
Separator	1FH	31	1byte
Other Information	30H or 31H	48 or 49	1byte
NUL	00H	0	1byte

	L and H data transmit graph: use dot for unit. Other information data transmit: "Hexadecimal=30H/Decimal=48" : Data is not printed. "Hexadecimal=31H/Decimal=49" : Data is not printed.
Parameter range	pL=3, pH=0 cn=49 fn=82 m=48
Default	None
Notes	This command do not print two-dimension bar code graph. Users must consider two-dimension bar code graph space.
Example	None
Name	Setting QR code graph information

⑧Printing double QR code

Name	Printing double QR code
Code	ASCII : US Q m n p1H p1L l1H l1L ecc1 v1 d1...dn p2H p2L 12H l2L ecc2 v2 dk...dm DEC : 27 81 m n p1H p1L l1H l1L ecc1 v1 d1...dn p2H p2L 12H l2L ecc2 v2 dk...dm HEX : 1F 51 m n p1H p1L l1H l1L ecc1 v1 d1...dn p2H p2L 12H l2L ecc2 v2 dk...dm
Function	Printing double QR code
Range	QR code numbers : 0<m>3 QR code size : n(1~8) P1H,p1L specify the location of QR1 : (p1H*256+p1L) L1H,l1L specify the data length of QR1 : (l1H*256+l1L) Ecc1 specify error correction level about QR1 :(0:7%, 1:15%,2: 25%,3:30%) V1 specify QR1 version of the symbol.(1~40, 0:auto size) D1...d2 as the data of QR1 ; P2H,p2L specify the location of QR2 : (p2H*256+p2L) L2H,l2L specify the data length of QR2 : (l2H*256+l2L) Ecc2 specify error correction level about QR2 :(0:7%, 1:15%,2: 25%,3:30%)

	V2 specify QR2 version of the symbol.(1~40, 0:auto size) Dk...dm as the data of QR2
Default	None
Notes	If module size is bigger than printing width, the QR data wil l be treated as normal data
Example	To Print string "0123456789" in QR Code at position 32 wi th ecc 1and Print string "987654321" in QR Code at positi on 192 with ecc 2, and module size 3, you should send com mand as follow。 1f 51 02 03 00 20 00 0a 01 06 30 31 32 33 34 35 36 37 38 39 00 C0 00 0a 02 00 39 38 37 36 35 34 33 32 31 30

⑨Other commands

Printer reset

Name	Printer reset
Code	ASCII : ESC @ Decimal : 27 64 Hex : 1B 40
Function	The ESC @ command initializes the printer as following : This command prints the data contained in the print buf

	fer, and initializes various setup items. Restore default values for each parameter
Range	None
Default value	None
Notes	None
Example	None

Print self-test page

Name	Print self-test page
Code	ASCII : DC2 T Decimal : 18 84 Hex : 12 54
Function	Printing a self-test page which including firmware version,interface,code page and other some information
Range	None
Default value	None
Notes	None
Example	1B 40 12 54

paper cut

Name	paper cut

<table>
<tr><td>Code</td><td>①
ASCII : GS V m
Decimal : 29 86 m
Hex : 1D 56 m
②
ASCII : GS V m n
Decimal : 29 86 m n
Hex : 1D 56 m n</td></tr>
<tr><td>Function</td><td>This command executes paper cutting
The relationship between parameter m and the cut mode is as follows:
<table>
<tr><td>M</td><td>Mode</td></tr>
<tr><td>0, 48</td><td>Full cut</td></tr>
<tr><td>1, 49</td><td>Partial cut</td></tr>
<tr><td>65,66</td><td>Feed paper and cut</td></tr>
</table></td></tr>
<tr><td>Range</td><td>① m = 0 , 48 , 1 , 49
② m = 66 , 0 ≤ n ≤ 255</td></tr>
<tr><td>Default value</td><td>None</td></tr>
<tr><td>Notes</td><td>This command is valid only at the beginning of the line
• m = 0 , 48 , 1 , 49 , Printer cut paper directly。</td></tr>
</table>

	• m = 65,66 , Feeds paper to[The distance between the print position and the cutter + n × (vertical motion unit)]and cu ts the paper • Moving units horizontally and vertically are set by the GS p command • The feed volume is calculated by moving units vertically.
Example	1B 40 30 30 30 0D 0A 1D 56 00 30 30 30 0D 0A 1D 56 01 30 30 30 0D 0A 1D 56 42 00

Full cut

Name	Full cut
Code	ASCII : ESC i Decimal : 27 105 Hex : 1B 69
Function	Full cut mode
Range	None
Default val	None

ue	
Notes	None
Example	1B 40 30 30 30 0D 0A 1B 69

Partial cut

Name	Partial cut
Code	ASCII : ESC m Decimal : 27 109 Hex : 1B 6D
Function	Partial cut mode
Range	None
Default value	None
Notes	None
Example	1B 40 30 30 30 0D 0A 1B 6D